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Towards effective socially-critical environmental education: stories from primary classrooms

Thesis submitted in fulfilment of the requirements
for the Degree of Doctor of Philosophy

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DECLARATION

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

Jane Edwards

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LIST OF ABBREVIATIONS

AARE	Australian Association for Research in Education
ACER	Australian Council for Educational Research
AuSSI	Australian Sustainable Schools Initiative
CDC	Australian Curriculum Development Centre
CERES	Centre for Education and Research in Environmental Strategies
CRT	Casual relief teacher
DEH	Department of the Environment and Heritage
DESD	Decade of Education for Sustainable Development
DEST	Department of Education, Science and Training
DET	Department of Education and Training
DHAE	Department of Home Affairs and Environment
DSE	Department of Sustainability and Environment
EPA	Environmental Protection Authority
ESD	Education for sustainable development
EV	East Valley Primary
EVNP	East Valley Nature Park
ICT	Information and communication technology
IT	Information technology
IUCN	International Union for the Conservation of Nature and Natural Resources
JPOI	Johannesburg Plan of Implementation
LOTE	Language other than English
MCEETYA	Ministerial Council on Education, Employment, Training and Youth Affairs
MEAB	Millennium Ecosystem Assessment Board
MP	Mountain Primary
OECD	Organisation for Economic Co-operation and Development
OHS	Occupational health and safety
OP	Ocean Primary
PD	Professional development
PE	Physical Education
SB	South Bay Primary
SC	Sirius College
SOSE	Studies of society and the environment
SSP	Sustainable Schools Program
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
VCAA	Victorian Curriculum and Assessment Authority
VELS	Victorian Essential Learning Standards
WCED	World Commission on Environment and Development
WSSD	World Summit on Sustainable Development
WQ	West Quay Primary

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ABSTRACT

International calls for the immediate implementation of education for sustainable development, as an urgent response to the global-scale environmental crises developing from current unsustainable human–environment relationships, face the paradox that educational systems are notoriously slow and difficult to alter. Effective education for sustainable development demands a socially-critical pedagogy, the goals and practices of which represent the antithesis of the well-established neo-vocational approaches into which environmental education is most usually slotted. Of significant concern is that these calls for educational change will simply contribute to the ever-widening gap between the reality of classroom practices and the rhetoric of education *for* the environment.

An investigation of the nature of educational rhetoric–reality gaps was undertaken in order to inform more-effective processes for achieving educational change. Case studies captured the experiences and practices of eleven teachers as they attempted to implement education for sustainable development through the socially-critical pedagogy of a sustainable schools program in six Victorian schools.

In order to gain a comprehensive understanding of the nature of the educational rhetoric–reality gap phenomenon it was necessary to explore beyond the individual effects of the additional classroom resources and teacher professional development sessions that constitute the majority of programs for educational change. In light of this, data analysis was guided by an ontological framework based on Anthony Giddens' theory of structuration and the notion of the duality of structure and agency—an approach not yet established in the field of educational research. Structuration provided a unique perspective on the manner in which relationships between elements of structure and agency influenced the educational endeavours of teachers and impacted on their ability to embrace pedagogical change.

The use of hypothetical scenarios during interviews enabled various aspects of teachers' knowledgeability to be explored. It was found that although the teachers tended to justify aspects of their agency in terms of various structural elements, those elements neither enabled nor constrained any teachers' classroom practice. While this implied that the educational rhetoric–reality gaps identified were issues of agency, detailed analysis of the teachers' responses to the hypothetical scenarios indicated that, in all cases, irrespective of how well teachers implemented the sustainable schools program, each teacher's classroom practice not only reflected their personal educational ideology, but actively reinforced that ideology.

Implications of the use of the theory of structuration in educational research, and in particular, in relation to understanding the role of teachers' agency in shaping classroom practices, are discussed. Suggestions for further research with the potential to inform processes that reduce the development of educational rhetoric–reality gaps are provided.

1 THE RESEARCH PROBLEM

1.1 INTRODUCTION

Since my life began, more people have been born than were born during the previous 4 million years. By the time my life ends (at a ripe old age I hope!) it is likely that I will have witnessed the earth's population treble in size to over 9 billion (Kunzig, 2011). Already I have witnessed the ecological footprint[1] of humanity increase from fifty percent of the earth's available capacity, to a staggering thirty percent *more* than the earth's capacity. Before my life ends, it is estimated that the resources of more than two earths will be required to support the human population (Wackernagel & Rees, 1997). Today, I envisage humanity as sitting on the edge of a precipice, faced with making decisions that will undoubtedly influence the viability of life on earth. Failure to acknowledge and act upon the evidence that the environmental consequences of current human–environment relationships are unsustainable, and indeed, detrimental to human life, will undoubtedly lead to an irreversible plummet: a rapid decline in life caused by a cascade of global environmental changes unprecedented in human history. On the other hand, the decision to embrace the notion of sustainability and act now to transform human–environment relationships may enable humanity to take one step back from the edge of this precipice. Irrespective of decisions made today, the enormity of the survival challenges yet to be faced by humanity is seemingly overwhelming. Despite this, I strongly believe that, with a little ingenuity, everyone can influence humanity's journey into the future: a journey that will be shaped, in part, by the way in which today's educators prepare students for their future decision-making roles. What follows is part of my contribution to that journey.

1.2 THE RESEARCH CONTEXT

Since the early 1970s there has been a growing social awareness that increased rates of population growth and unmitigated resource use are not sustainable, as these have facilitated a significant decline in the capacity of earth systems to continue to support human needs (Suzuki, 2003). The scale of the detrimental effects of many human–environment relationships is well demonstrated by global warming, the effect of the release of greenhouse gases from the burning of fossil fuels: "today we are hearing and seeing dire warnings of the worst potential catastrophe in the history of human civilization: a global climate crisis that is deepening and rapidly becoming more dangerous than anything we have ever faced" (Gore, 2006, p.10).

As humanity celebrated the start of the 21st century, the United Nations Secretary-General Kofi Annan called for an assessment of "the consequences of ecosystem change for human well-being and the scientific basis for actions needed to enhance the conservation and sustainable use

[1] An "Ecological Footprint measures resource consumption of human activities across the whole lifecycle of a product or service and converts this to the amount of land needed to supply the resources consumed and assimilate the waste generated" (EPA, 2007).

of those systems and their contribution to human well-being" (MEAB, 2005, p.1). Five years later, the Millennium Ecosystem Assessment Board concluded that:

> it lies within the power of human societies to ease the strains we are putting on the natural services of the planet, while continuing to use them to bring better living standards to all. Achieving this, however, will require radical changes in the way nature is treated at every level of decision-making. Resilience and abundance can no longer be confused with indestructibility and infinite supply. The warning signs are there for all of us to see. The future lies in our hands (MEAB, 2005, p.23).

And so began the Decade of Education for Sustainable Development (DESD), 2005–2014, which embraced the notion that responding to the problems caused by current human–environment relationships required widespread and long lasting social transformation, and that this was best achieved through appropriate education of society's future decision makers (WCED, 1987; WSSD, 2002).

O'Sullivan (1999) considered the notion of education for sustainable development (ESD) to represent a "transformative moment" (p.5) in that it questioned not only the value and sustainability of the well-established human–environment relationships upon which today's western societies are founded, but also the educational practices that supported and ensured continuity of those relationships (O'Sullivan, 1999, p.5). Such educational practices reflect a 450-year history of development alongside the industrial and technological advancements that have been driven by the findings of scientific methodologies and the notion of positivist inquiry. The positivist focus on knowledge formed the basis of the neo-vocational pedagogy of traditional science education and continues to influence many educational practices. However, many of the principles and goals of these practices reflect what is today considered by many to be an outdated and "mechanistic worldview" (Capra, 1997, p.4), and which fail to embrace the future-oriented and socially transformative goals of ESD—goals best achieved through a socially-critical pedagogy (see for example Fien, 1993; Fien, 2001; Gough, 1997; Scott & Gough, 2003, 2004; Tilbury, Hamu & Goldstein, 2002).

1.3 THE RESEARCH FOCUS: EDUCATIONAL RHETORIC–REALITY GAPS

However, despite over forty years of calls for practices in schools to more effectively support the socially transformative goals of environmental education, and most recently, of ESD, traditional neo-vocational pedagogies remain predominant (McKeown, 2002). This supports the notion that the transformation of educational practices is somewhat problematic (see for example Andrews, 1996; Fullan, 2003, 2007; Hargreaves, 1996; Sarason, 1990). As noted by Donnison (2004), "teachers and educational institutions are resistant to change" (p.26), in part, because "the way that teachers are trained, the way that schools are organised, the way that the

educational hierarchy operates…results in a system that is more likely to retain the *status quo* than to change" (Fullan, 2003, p.3, original italics). This inability to embrace change is illustrated by the development of educational rhetoric–reality gaps, that is, differences between the rhetoric of educational theory and the reality of a teacher's pedagogy. Many educational rhetoric–reality gaps have developed in response to calls to depart from a knowledge-based neo-vocational pedagogy in order to accommodate the goals of environmental education through a socially-critical pedagogy (see for example Bishop & Russell, 1985; Fien, 2001; McKeown, 2002; Robertson & Krugly-Smolska, 1997; Stapp & Stapp, 1983; Stevenson, 2007b). In Victoria, the Australian Sustainable Schools Initiative (AuSSI) aimed to guide educational transformation for ESD through the implementation of the Sustainable Schools Program (SSP). Achievement of the future-oriented and socially-transformative goals of this program was contingent upon the use of a socially-critical pedagogy.

In light of the prevalence of the development of educational rhetoric–reality gaps in response to calls for environmental education, ESD, as implemented through SSP, provided an appropriate context for my investigation of the manner in which teachers approached educational change, and in particular, pedagogical change.

1.4 THE RESEARCH QUESTIONS

I undertook this research with the aim of contributing to efforts to establish human–environment relationships that are more sustainable. The prevalence of the development of educational rhetoric–reality gaps in response to efforts to implement a pedagogy that directly addressed the outcomes of ESD (see for example Bishop & Russell, 1985; Fien, 2001; McKeown, 2002; Robertson & Krugly-Smolska, 1997; Stapp & Stapp, 1983; Stevenson, 2007b) indicated that I could achieve this by identifying ways in which to reduce such educational rhetoric–reality gaps. This required me to develop a holistic understanding of the nature of an educational rhetoric–reality gap, including how it is produced and how it is experienced and understood by teachers. Only then would I be able to recommend effective intervention points for assisting teachers to more effectively transform the rhetoric of environmental education, or ESD (as represented by the socially-critical pedagogy advocated by SSP in Victoria), into the reality of their classroom practices. This research aim is represented by two research questions:

1. What is the nature of an educational rhetoric–reality gap?
2. How can educational rhetoric–reality gaps be reduced?

Answering these two research questions required me to focus on investigating three main aspects of the educational change process undertaken by teachers as they attempted to implement SSP through a socially-critical pedagogy:

- Rhetoric—teachers' understandings of the environmental ideologies embraced by the goals of SSP and the educational ideologies represented by the practices of a socially-critical pedagogy;
- Reality—the manner in which teachers incorporated SSP into their classroom practices; and
- Teachers' experiences—the role of the relationship between specific elements of teachers' agency and classroom structures in their implementation of SSP.

1.5 SIGNIFICANCE OF THIS RESEARCH

Educational rhetoric–reality gaps are central to the research problem and form the basis of the research questions. The significance of my research findings, however, relate to the manner in which I chose to investigate such rhetoric–reality gaps, rather than simply their presence or absence. This research attests to my agreement with calls for the need to alter educational practices in order to facilitate the establishment of more sustainable human–environment relationships (WCED, 1987; WSSD, 2002). My research contributes to addressing this need by recognising that such fundamental change requires developing new ways to think about the role and practice of education, and that in turn, this requires educational researchers to engage with new and different methodologies in the search for new and different perspectives that may encourage and inform this new thinking.

Rhetoric–reality gaps, named by Stevenson (1987; 2007b) to describe what had been a long-recognised phenomenon, have been well documented by environmental educators (e.g. Fien, 2001; Tilbury, Coleman & Garlick, 2004) and were not unexpected in the context of the implementation of SSP. The significance of my research lies in the new perspectives of the nature of such educational rhetoric–reality gaps that I gained through the use of a methodological approach, founded on Giddens' theory of structuration, yet to be established within the field of educational research. My work to adapt Giddens' theory of structuration to the investigation of the implementation of SSP, and therefore the development of educational rhetoric–reality gaps, presented the opportunity to obtain new insights into established educational practices. Most significantly, my research findings may encourage and inform new ways of thinking about the practice of education, and demonstrate the value of exploring new methodological approaches to educational research.

1.6 A PERSONAL PREMISE

My position in this research reflects an understanding of the role of education that I developed through my work as a geologist. Geological research is positioned somewhat uncomfortably between positivist and post-positivist paradigms of scientific inquiry. As scientists, geologists theoretically strive for objective truth, while recognising that the incomplete nature and infinite

variability of their research objects often renders this unobtainable. Our response is to accept a post-positivist ontology that acknowledges some imperfection and limitation to human interpretation, and reduces truths to probabilities. This concession by no means eliminates the effect of human bias, opinion and values in such scientific inquiry. At best, there is an uneasy understanding that geological practice is often more art than science, and that qualitative methodologies are essential in the absence of quantifiable variables. Irrespective of these contradictions, geology is a science that not only provides the vast array of inorganic natural resources that today we depend upon for energy, industrial processes and technological advancement, but also enables us to predict natural hazards, unravel the earth's history, and explore beyond the realms of our own planet.

Geological knowledge, like that of any science, is just that—knowledge. It is not accompanied by rules or suggestions for how or when, if ever, it is to be used. It is this premise that I bring to this research, and my investigation of the role of education in finding ways in which to make current human–environment relationships more sustainable. In the following chapters I will argue that effective environmental education requires the future-oriented and socially transformative approach of a socially-critical pedagogy. However, in no way does this diminish my belief in the importance of science methodologies, positivist inquiry, or science education. Just as the use of scientific knowledge without thought to the consequences is unjustifiable, so too is making decisions in ignorance of what scientific inquiry can tell us about our world.

1.7 OUTLINE OF THESIS

In this chapter I outlined my reasons for undertaking this research into educational rhetoric–reality gaps and presented my research questions. In Chapter 2, I introduce the Sustainable Schools Program (SSP) as the vehicle through which I chose to seek the answers to the research questions. I provide a social and educational context for SSP by presenting an historical perspective of environmental education in Australia, and in particular, the manner in which the rhetoric of ESD, as the practice of socially-critical pedagogy, shaped the development of SSP as an exemplar of education *for* the environment. In Chapter 3, I outline the ontological framework, founded on Giddens' theory of structuration (1979; 1984), that underpinned my research design, and which informed my analysis and interpretation of the data. I review relevant literature, particularly in relation to Giddens' notion of the duality of structure and agency, and the manner in which this idea influenced my research process. I outline this process in Chapter 4, provide a rationale for choosing an interpretive research approach, and explain how I employed a case study methodology to address the research questions while supporting a constructionist view of knowledge and the ontological reality of the research context. I also describe how I incorporated ethical considerations and issues of quality into my research practices. In Chapter 5, I introduce the case studies of teachers and principals whose stories, based on their experiences and perspectives of implementing SSP and a socially-critical

pedagogy, formed the context through which I investigated educational rhetoric–reality gaps and sought answers to the research questions. In Chapter 6, I report on my analysis of these cases in order to identify the presence of educational rhetoric–reality gaps, and to nominate strategic cases for detailed analysis. I present my analysis of the critical elements of the duality of structure and agency, as represented in these strategic cases, in Chapter 7, and identify the nature of an educational rhetoric–reality gap as an issue of agency. In Chapter 8, I present the findings of my analysis of teacher agency, and highlight the relationship between teachers' educational ideology, ontological security and the development of educational rhetoric–reality gaps. Finally, in Chapter 9, I identify and define *ideological* rhetoric–reality gaps and discuss ways in which they might be reduced. I reflect on my research findings and methodological approach, in terms of implications for future research into the development of educational rhetoric–reality gaps and the design of programs for educational change, and reflect on the benefits and limitations of Giddens' theory of structuration for educational research.

2 ENVIRONMENTAL EDUCATION AND SOCIALLY-CRITICAL PEDAGOGY

2.1 INTRODUCTION

The previous chapter discussed how today's western societies are founded on human–environment relationships that are no longer sustainable. Environmental education was identified as essential for achieving sustainable development—only through education will environmental understandings required to maintain vital human–environment relationships and sustain human life into the future be restored (WCED, 1987). This chapter identifies the educational rhetoric associated with Education for Sustainable Development (ESD) by briefly outlining the forty-year journey from traditional, science-based environmental education to ESD, as it occurred in Australia in response to international recommendations. Important pedagogical responses to changes to the perceived needs and outcomes of environmental education are highlighted, with particular emphasis on the role of socially-critical pedagogy for ESD. The development of the Australian Sustainable Schools Initiative (AuSSI) is introduced as an exemplar of attempts to implement ESD through socially-critical pedagogy in Victoria. In particular, the current status of ESD is assessed in terms of the manner in which it is being implemented by schools and teachers.

2.2 INTERNATIONAL RECOMMENDATIONS FOR ENVIRONMENTAL EDUCATION

During the 1970s, evidence that human–environment relationships, particularly the unmitigated overuse of natural resources, were critically endangering earth's environmental systems began to gain widespread public attention. Recognition that transforming the well-established human–environment relationships responsible for impending social and environmental crises led to calls for environmental education. In 1970, the International Union for the Conservation of Nature and Natural Resources (IUCN) Nevada conference concluded that "environmental education was a science-orientated multi-disciplinary subject where most, if not all, school subjects could, and should be, incorporated" (Martin, 1975, p.21). Environmental education was viewed as a process which provided students with opportunities for:

> recognising values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision-making and self formulating of a code of behaviour about issues concerning environmental quality (cited in Gough, 1997, p.8).

In 1972, recommendations for the establishment of the UNESCO-UNEP International Environmental Education Programme (IEEP) at the United Nations conference on the Human

Environment in Stockholm more clearly positioned environmental education as a means for encouraging people to take action according to their developing 'codes of behaviour':

> Education and training on environmental problems are vital to the long-term success of environmental policies because they are the only means of mobilising an enlightened and responsible population, and of securing the manpower needed for practical action programmes (cited in Gough, 1997, p.3).

Linke (1980) noted that by the mid-1970s, international calls for environmental education identified several critical educational outcomes directed towards developing a society's understanding of: human–environment relationships and human influence on environmental systems; and their responsibility for ensuring quality of human life while actively contributing to environmental conservation (see also Gough, 1997). The IEEP supported the development of these outcomes into more substantial policies at the International Environmental Workshop in Belgrade (in former Yugoslavia) in 1975. Here, for the first time, a global framework (the Belgrade Charter) was provided for the most important goals for effective environmental education:

> The goal of environmental education is to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones (UNESCO, 1975, p.3).

The Belgrade Charter incorporated the growing understanding that humans needed to transform the manner in which they interacted with their environments. In particular, the charter demonstrated the understanding that environmental education must ensure that individuals are able and willing to take positive action in ways that benefit both humans and the environment. These broad statements were more fully developed during the 1977 Intergovernmental Conference on Environmental Education in Tbilisi, USSR, and presented as the Tbilisi Declaration (Gough, 1997):

> Environmental education, properly understood, should constitute a comprehensive lifelong education, one responsive to changes in a rapidly changing world. It should prepare the individual for life through an understanding of the major problems of the contemporary world, and the provision of skills and attributes needed to play a productive role towards improving life and protecting the environment with due regard given to ethical values (UNESCO, 1978, p.24).

This Declaration positioned environmental education as a future-oriented, global and interdisciplinary lifelong process of learning which values cooperation in the prevention and solution of environmental problems. It noted that in order to ensure individuals are able and willing to take action, environmental education must embrace four specific goals: awareness, knowledge, attitudes, skills and participation. Furthermore, these goals could only be achieved through a holistic approach encompassing economic, political, cultural-historical, ethical and aesthetic perspectives. Unlike many earlier statements, this declaration also acknowledged the importance of pedagogy in achieving environmental education goals. It indicated that learners must be assisted to develop critical thinking and problem-solving skills by becoming active participants in "planning their learning experiences…making decisions and accepting their consequences" particularly within their local environment, such that environmental education must "utilize diverse learning environments and a broad array of educational approaches to teaching, learning about and from the environment with due stress on practical activities and first-hand experience" (UNESCO, 1978, p.27). Most significantly, the Tbilisi Declaration validated the need for critical reflection of established human–environment relationships, and unquestionably acknowledged the need for significant societal transformation.

UNESCO-UNEP has reviewed the progress of international implementation of the Tbilisi Declaration on several occasions. The 1987 conference in Moscow developed an International Strategy for Action in the Field of Environmental Education and Training for the 1990s (Gough, 1997). The 1997 conference in Thessaloniki focussed on "Education and Public Awareness" as critical for effective implementation of the Tbilisi principles. The Declaration of Thessaloniki recommended that decisions and actions of international, national and local social interactions must give "priority to education, public awareness and training for sustainability" (UNESCO, 1997a, p.3). Recommendations arising from the 2007 conference in Ahmedabad reflected the increasing understanding of "the harsh reality that not only are we exhausting and plundering the resources of the Earth at unsustainable rates, but we are on the threshold of unimaginable devastation that climate change is likely to bring" (UNESCO, 2007p, 3-4), and that this demands urgent social transformation:

> We no longer need recommendations for incremental change; we need recommendations that help alter our economic and production systems, and ways of living radically. We need an educational framework that not only [facilitates] such radical changes, but can take the lead (UNESCO, 2007, p.4).

All of these conferences reaffirmed the environmental education principles, established by the Tbilisi Declaration, which have endured as the framework for environmental education in Australia and around the world (Fien, 2001; Gough, 1997). However, the Ahmedabad Declaration most clearly articulated a sense of urgency for social transformation, and called for

urgent changes to the purpose and practices of education: "fundamental changes in the creation, transmission and application of knowledge in all spheres and at all levels" (UNESCO, 2007, p.4).

2.3 ENVIRONMENTAL EDUCATION IN THE CLASSROOM

Environmental education began to be more widely practiced during the late 1970s–1980s but early attempts rarely addressed the full spectrum of learning outlined by the Tbilisi Declaration. In general, existing science curricula were modified to incorporate discrete ecological and conservation topics in order to educate about the natural environment. This science-based approach valued knowledge and awareness, rather than attitudes, skills or participation, in the belief that these alone would enable society to reduce the degradation of earth's environmental systems (Orr, 1999; Spring, 2004). This reflects the belief that there is a strong relationship between awareness and knowledge, critical reflection and behaviour modification. The fact that, in general, more highly educated nations have the largest ecological footprints (Global Footprint Network, 2007) demonstrates that such relationships, at least in relation to environmental education, are complex and unpredictable (Kollmuss & Agyeman, 2002). It has also been shown that "too much environmental knowledge (particularly relating to the various global crises) can be disempowering, without a deeper and broader learning process taking place" that enables students to respond, through action, to their developing awareness and understanding (Sterling, 2003, p.19). In other words, appropriate pedagogy is central to achieving effective environmental education, a notion addressed by Lucas (1972; 1979) in the development of his tripartite model for environmental education.

2.3.1 The Lucas model

During the early 1970s, a review of environmental education practices in Australia identified three common themes:

- awareness of interrelationships between man [sic] and the environment, and the understanding of both the nature and implications of human impact on the environment;
- a concern for the quality of human life' and
- the promotion of a personal commitment to, or acceptance of responsibility for, environmental conservation (Linke, 1980, pp.27-34).

At that time, Linke (1980) identified Lucas' (1972; 1979) tripartite environmental education model as most comprehensively representing the multifaceted nature of environmental education practices. Lucas' model aimed to "reduce the ambiguity of the term 'environmental education' " by representing the goals of different components of environmental education which he termed education *in*, *about* and *for* the environment (Thomas, 2005, p.107). Education *about* the environment, that is, the development of "cognitive understanding" and the

"development of skills necessary to obtain this understanding" (Lucas, 1980, p.167) had long been well represented as science education. Education *in* the environment referred to experiential learning during which instruction occurred "outside the classroom" in the "biophysical and/or social context in which groups of people exist", while education *for* the environment was "directed to environmental preservation or improvement for particular purposes" (Lucas, 1980, p.167). Lucas argued that the process of learning was just as important as the content learned: education *in* the environment encouraged learning that engaged "all the senses, not just the intellect"; whereas education *for* the environment encouraged active and contextually appropriate experiential learning (Orr, 1999, p.234).

The validity of each of the three components of Lucas' model has been extensively debated (e.g. Fien, 1993; Gayford, 1996; Gough, 1997; Jickling & Spork, 1998; Linke, 1980). Critics point out that education *about* the environment (as traditional science or discipline-based learning) simply ignores important social aspects of human–environment relationships, while education *in* the environment simply changes the place in which traditional science learning occurs (Gayford, 1996; Linke, 1980). However, it is the notion of education *for* the environment that has caused the greatest consternation about the role of environmental education.

2.3.2 Education *for* the environment

According to Stevenson (1987), education *for* the environment differs from education *about* and *in* the environment in terms of its goals, and the pedagogical approaches through which these goals are reached. He described education *for* the environment as working towards "socially critical and political action goals" (1987, p.69) through pedagogies that incorporate:

> the intellectual tasks of critical appraisal of environmental (and political) situations and the formulation of a moral code concerning such issues, as well as the development of a commitment to act on one's values by providing opportunities to participate actively in environmental improvement (1987, p.73).

This clearly positioned education *for* the environment as a critical, political endeavour, which aimed to promote and support the "transition to a socially just and ecologically sustainable society" (Fien, 1993, p.48). This means that for some critics, the term 'education *for* the environment' appears to contradict its intended goals. Gough, for example, stated that the term represents a "patronising and anthropocentric" perspective in that it objectifies human–environment relationships. He asked "who are we to say what is 'good' for the environment, and which environment is '*the* environment' anyway? (1987, p.50). He noted that the term supports "distinctions between subject and object, education and environment, learner and teacher" and therefore fails to be inclusive of alternative worldviews such as those representative of deep ecology in which humans see "themselves and nature are part of 'being' " (1987, p.50). This argument highlights the propensity for the term 'education *for* the

environment' to be interpreted, or misinterpreted, in ways that reflect the preferred environmental and educational ideologies of the interpreter. Table 2.1 links the intention of education *about*, *in* and *for* the environment to specific environmental and educational ideologies, the latter of which were derived from the work of Kemmis, Cole & Suggett (1983) and O'Riordan (1989), and which define major pedagogies and educational outcomes. The table highlights modifications to Lucas' original terminology, suggested by authors attempting to locate components of environmental education within specific ideologies, including: education *from*, *through* and *with* the environment (Gough, 1997), and conservative education *about* the environment, liberal education *about*, *through* and *for* the environment, and critical education *for* the environment (1993). According to Fien (1993), only an ecocentric, socially-critical approach to critical education *for* the environment fully addresses the intended goals of education *for* the environment described by Stevenson (1987) above. In this research, this is referred to as 'socially-critical education *for* the environment' in recognition of the relationship of Lucas' terminology to specific environmental and educational ideologies, as shown in Table 2.1, and through which interpretations concerning educational goals and practices can be discussed and assessed. As such, socially-critical education *for* the environment demands an educational approach that supports "personal and social change" (Fien, 1993, p.49) as it aims to promote "ecologically sustainable, people-environment relationship[s]" through "an overt agenda of political literacy, values education, and social change" (Thomas, 2005, p.108). This agenda has been the focus of much debate.

Socially-critical education *for* the environment has been labelled as overly deterministic by some critics, who believe it has the potential to indoctrinate students rather than facilitate the development of their own values and attitudes towards human–environment relationships (Burbules & Berk, 1999; Jickling & Spork, 1998). The notion that any educational practice can indoctrinate assumes that educators are able to identify a specific "set of skills" and values or attitudes, that when taught, will lead to a specific behaviour (Scott & Gough, 2003, p.115). However, research regarding the nature of human constructed values, attitudes and beliefs, and their relationship to human action, indicates that the premise that environmental education can teach specific or long-lasting environmental values or attitudes is unwarranted. Even altering an individual's value priorities is an extremely unlikely outcome, unless accompanied by significant and contextually specific experiences (Ajzen, 1996; Fazio & Zanna, 1981; Kraus, 1995; Lewin & Grabbe, 1945; Rokeach, 1973).

Despite this, some educators prefer a liberal education *for* the environment to assist students to learn "how to think, not what to think" (Jickling, 2003, p.22). This has also been contested for naïvely assuming that it is possible to remove the influence of values and political agendas from educational endeavours. Huckle, for example, argued that this is not possible, and noted that values are "shaped by the material circumstance within which people live; circumstances sustained by powerful interests who can easily co-opt the ecological message and turn it to their

Table 2.1 Educational and environmental ideologies in different approaches to environmental education (adapted from Fien, 1993, p.40).

Environmental ideology		Educational ideology		
		Vocational/ neo-classical (prepare students for their future work)	**Liberal/ progressive** (prepare students for their life in society)	**Socially critical** (prepare students for their role in creating society)
Technocratic	**Cornucopian** (environmental problems can be solved through science and technology)	**Conservative education *about* the environment** (environmental knowledge is obtained from positivist study of the natural sciences)		
	Accommodation/ Managerialism (environmental problems can be averted by good management of human–environment relationships)		**Liberal education *about* the environment** (environmental understanding is obtained through problem solving and enquiry-based study of the natural sciences)	
	Communalism/ Ecosocialism (cooperation will ensure that equality is part of all human-human and human–environment relationships)		**Liberal education *in* (*through*) the environment** (student-centred and experiential learning in environments outside the classroom)	**Critical/Socially-critical education *for* (*with*) the environment** (learning through decision-making, participation and action)
Ecocentric	**Gaianism/ Utopian** (humanity is just one component of earth's natural systems, and is therefore subject to the same laws of nature)		**Liberal education *for* the environment** (identifying attitudes, values and beliefs through the case study of local environmental issues)	

advantage" (Huckle, 1986, p.6). Instead, the aim of socially-critical education *for* the environment is to assist students to recognise that people enact different values and value priorities in different contexts, and to provide opportunities through which students can "*derive* for themselves thoughts, actions and feelings" (Scott & Gough, 2003, p.115, original italics). Fien (1993) suggested that socially-critical education *for* the environment is best undertaken within a framework of "committed impartiality" which encourages teachers to "state rather than conceal their own views on controversial issues" and to "foster the pursuit of truth by insuring that competing perspectives receive a fair hearing through critical discourse" (Kelly, 1986, p.130). This approach positions learning not as "a process which acts on individuals'

characteristics in order to change the world", but rather "one which challenges individuals' views of the world as a means of influencing their characteristics and hence ways of thinking and living" (Scott & Gough, 2003, p.119). This is not indoctrination.

It is important to note that Lucas' model places each of education *about*, *in* and *for* the environment as essential for holistic environmental education. This means that effective environmental education requires the deliberate inclusion and intent of education *for* the environment (Greenall, 1980), not just within science curriculum, but as an integral component of all learning activities (Linke, 1980).

From this point on, the term 'education *for* the environment' refers to goals and practices consistent with the environmental and educational ideologies of a 'socially-critical education *for* the environment' discussed above, and as represented in Table 2.1.

2.3.3 Implementation of Lucas' model

Lucas' (1972) notion of education *for* the environment was not without precedence, and had long been represented in schools outside Australia. For example, in Britain during the 1960s, school programs provided opportunities for students and communities to participate cooperatively in local environmental planning processes. By the 1980s the focus of this education had moved beyond local community concerns to embrace "the social use of nature and issues of environment and development at all scales" (Huckle, 1991, p.52). However, successive reviews of various environmental education programs and pedagogical practices in Australia (discussed by Fien, 1993), including a national evaluation (Linke, 1980), a review by a study group of the Australian Curriculum Development Centre (CDC) (Greenall, 1980), case study evaluations undertaken as part of an CDC environmental education project (Robottom, 1983; Stevenson, 1986), and observations by Stapp and Stapp (1983) and Huckle (1987a; 1987b), all reported the overwhelming absence of pedagogies supportive of the ideals and goals of education *for* the environment, even when these were appropriately expressed in curriculum guides. In other words, there was a significant gap between the rhetoric of education *for* the environment and the reality of teacher practices (see Section 2.6).

2.4 SUSTAINABLE DEVELOPMENT—A NEW DEBATE

As the public debate and concern about environmental issues continued to grow throughout the 1980s, understanding of the nature of human–environment relationships evolved to incorporate global perspectives and complex interrelationships between the biophysical, social, economic and political aspects of any society (Fien, 2001; Fien & Gough, 2000). This encouraged reconsideration of how to define and practice 'education *for* the environment', reflected in recommendations presented in The World Conservation Strategy (IUCN, 1980), the National Conservation Strategy for Australia (DHAE, 1984), and the report of the World Commission on Environment and Development (WCED, 1987). These reports considered the most critical goal

for environmental education to be preparing societies to respond to 21st century challenges in ways that would maintain and preserve viable human–environment systems, and that in light of this, students must learn how to contribute to the development of sustainable societies (Fien, 2001; Fien & Gough, 2000; Gough, 1997). The WCED suggested that "Education for Sustainable Development" (ESD) was an essential part of mitigating problems associated with increasingly complex human–environment relationships, noting that " 'the world's teachers…have a crucial role to play' in helping to bring about 'the extensive social changes' needed for sustainable development to be achieved" (WCED, 1987 cited in Gough, 1997, p.32). This represented a significant change in environmental education discourse. ESD has become a strongly contested concept, both in terms of environmental ideology and its implications for the role of education in society (e.g. Fien, 1993; Gough, 1997; Scott & Gough, 2003, 2004). It encompasses a broad range of concepts, "based on ideals and principles that underlie sustainability, such as intergenerational equity, gender equity, social tolerance, poverty alleviation, environmental preservation and restoration, natural resource conservation, and just and peaceable societies" (UNESCO, 2005b, p.28) which cannot be addressed by any single educational program. The following discussion outlines the goals of ESD as represented by the documents which informed the curriculum and teacher practices investigated. This curriculum focussed on the "environmental preservation and restoration" and "natural resource conservation" (UNESCO, 2005b, p.28) components of ESD, hereafter referred to as environmental education.

Sustainable development has been described as a "shifting, indefinable and contingent concept" (Scott & Gough, 2003, p.125) founded on the future-oriented principle that the action of today's society "meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p.43). However, Chapman (2004) noted that the term:

> sustainability, as it is employed in general usage, can mean anything you want. It has so many interpretations that it lacks any capacity to confront the reality of the unsustainable behaviour of our societies. The notions of sustainable growth, sustainable development and sustainable consumption (OCED, 1999) link the concept of sustainability with language that has implicit meanings and assumptions that are technocratic and underlie the causes of environmental problems (p.99).

Despite these inherent contradictory messages, ESD aims to embrace environmental education by "setting it in the broader context of socio-cultural factors and the socio-political issues of equity, poverty, democracy and quality of life" (DSE, 2005), and is most significantly "about learning for change" (IUCN, 2002). ESD places education not only as "a means of implementing" sustainable development (Scott & Gough, 2003, p.125), but also as an essential "part of a process of building an informed, concerned and active civil society" (Fien, 2001,

p.17), through developing the "capacity of human beings to continuously adapt to their non-human environments by means of social organisation" (Hamm & Muttagi, 1998, p.2). These goals not only differ significantly from the common themes of Australian environmental education practices identified by Linke (1980), but remain relatively abstract in terms of how they might be incorporated into educational practice (Scott & Gough, 2003).

In 1992, the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil, attempted to support "re-orientating education towards sustainable development" (Gough, 1997, p.33) through the establishment of twenty-seven sustainability principles incorporating key aspects of both environmental protection and human development. However, in the decade following the presentation of these principles, the establishment of ESD by schools, communities and governments had been slow (McKeown, 2002), and there was growing concern that globally, human–environment relationships were deteriorating at an ever-increasing rate (Gore, 2006). In 2002, the United Nations World Summit on Sustainable Development (WSSD) in Johannesburg aimed to identify practical methods for implementing the sustainability principles established in Rio de Janeiro. In relation to education, the final Johannesburg Plan of Implementation (JPOI) stated that it was necessary to "Integrate sustainable development into education systems at all levels of education in order to promote education as a key agent for change" (WSSD, 2002, Article 121).

In response to WSSD recommendations, in 2002 the United Nations General Assembly proclaimed a Decade of Education for Sustainable Development (DESD) for the period 2005–2014 (WSSD, 2002), outlining a vision for a future as "a world where everyone has the opportunity to benefit from education and learn the values, behaviour and lifestyles required for a sustainable future and for positive societal transformation" (DSE, 2005, p.4).

2.4.1 Education for Sustainable Development (ESD)

The notion of ESD as a vehicle for 'societal transformation' has created an opportunity to re-define the purpose and practice of education, but in so doing, presents an enormous challenge for educators. While there is no agreed definition for what constitutes such transformative education, O'Sullivan, Morrell and O'Connor (2002) suggested that:

> transformative learning involves experiencing a deep, structural shift in the basic premises of thought, feelings, and actions. It is a shift of consciousness that dramatically and permanently alters our way of being in the world. Such a shift involves our understanding of ourselves and our self-locations; our relationships with other humans and with the natural world; our understanding of relations of power in interlocking structures of class, race and gender; our body-awareness, our visions of alternative approaches to living; and our sense of possibilities for social justice and personal joy (p.xvii).

This definition reveals the complexity and multiplicity of the inherent values, and moral and ethical dimensions, of environmental and societal issues that position ESD as the precursor to action for social transformation towards sustainable development—expectations unlike any traditional subject, and beyond the capacity of the most pervasive or familiar teaching methods (Gayford, 1996).

2.4.2 Pedagogy for ESD

As ESD "calls for additional and different processes than those traditionally thought of in education…to involve people, rather than convey just a body of knowledge" (Tilbury et al., 2002, p.12), "issues of pedagogy are…vital in reorientating education towards sustainability" (Fien, 2001, p.23). However, "there is no absolute answer to the question of what is an appropriate pedagogical approach to learning in the context of sustainable development" (Scott & Gough, 2004, p.75). An effective pedagogy must not only encompass all of the scientific, technological, economic, aesthetic, political, ethical, cultural and spiritual aspects of human–environment interactions demanded by ESD, but also:

- inspire students' belief that they have the power and the responsibility to effect positive change on a global scale;
- encourage students to become primary agents of transformation towards sustainable development, increasing their capacity to transform their vision for society into reality;
- develop the values, behaviour and lifestyles required for a sustainable future;
- facilitate the learning of how to make decisions that consider the long-term future of the equity, economy and ecology of all communities; and
- build students' capacities for future-oriented thinking (AAEE, 2005, p.17).

Putting all of these into practice however, is problematic. Although it is evident that the acquisition of knowledge, often associated with traditional science education about the environment, does not fulfill the holistic nature of ESD, "the role of science and technology deserves highlighting as science provides people with the ways to understand the world and their role in it" (UNESCO, 2005a, p.18). In other words, science knowledge and environmental education should not be mutually exclusive (Gough, 2007, 25-29 November). Traditional science pedagogy however, conflicts with the behavioural outcomes of ESD, as transmissive teaching practices objectify the "biogeophysical" world, effectively separating humans from their environment and segregating facts from values (Scott & Gough, 2004). As part of ESD, science pedagogy must incorporate more inclusive paradigms of teaching and learning to become oriented towards learning for action, or "science for action" (Gough, 2007, 25-29 November) in ways that "provide a scientific understanding of sustainability together with an understanding of the values, principles, and lifestyles that will lead to the transition to

sustainable development" (UNESCO, 2005a, p.18). This reflects the understanding that holistic ESD must explore human activity as one part of the environment, and this involves the role of human values and attitudes, or ideologies.

There is a long history of debate concerning the role of human values in environmental education (see for example Lucas, 1980). According to UNESCO, ESD is "fundamentally about values, with respect at the centre: respect for others, including those of the present and future generations, for difference and diversity, for the environment, for the resources of the planet we inhabit" (UNESCO, 2005a, p.6). Many human decisions and behaviours, including those relating to the environment, are driven by values, value priorities, attitudes, and beliefs (Gayford, 1996). This is the basis for recommendations for the incorporation of values education in ESD (e.g. the Belgrade Charter and Tbilisi Declaration), and is paralleled by studies indicating a pervasive belief amongst primary school teachers that environmental education must include the teaching of attitudes (Cutter & Smith, 2001b).

Values education however, is somewhat problematic. It requires educators to determine what values are, how they are constructed, whose values should be taught, if values and attitudes can be actively learned, and if teaching values is simply indoctrination (Section 2.3.2). For example, in *Educating for the Future: A Transdisciplinary Vision for Concerted Action*, UNESCO (1997b) states that "Sustainable consumption does not necessarily mean consuming less. It means changing unsustainable patterns of consumption by allowing consumers to enjoy a high quality of life by consuming differently" (cited in Spring, 2004, p.121). For many, human consumer values are the root of today's environmental concerns, and yet this statement clearly retains the value of consumerism as a measure of life quality. School communities consider values education to be important, and identify the value of "individual responsibility" as essential (DSE, 2005, p.4), particularly as it relates to the maintenance and preservation of the environment (DEST, 2005). However, the learning outcomes of values education depend, in part, on the manner in which it is taught. For example, a behaviourist pedagogical focus may achieve little more than "green consumers" (Gayford, 1996), rather than developing the political literacy required to understand the role of values in the formation of complex and diverse societal environmental ideologies and resulting behaviours (McKeown, 2002, p.14). It is only through these understandings that environmental issues may be truly understood and "constructively resolved" (Clayton & Opotow, 2003, p.19). These outcomes require pedagogy that assists both teachers and students to begin to understand the nature of their own agency. Educators must understand the implicit political and social messages conveyed not only by the context of the content knowledge they teach, but equally the manner in which they teach it (Giroux, 1997).

Effective ESD must therefore incorporate opportunities for developing understanding of the nature of human agency. This requires learning opportunities that facilitate students'

understanding of the mechanisms of ideological conflict and resulting political forces, through critical examination of the past, present and potential future effects of human–environmental relationships. Teaching for social critique is therefore fundamentally concerned with facilitating understanding of how humans frame their ideas according to their values, attitudes and beliefs, how they construct their environmental ideologies and behavioural choices, and how these interact within a society (Scott & Gough, 2003, 2004). The transformative learning outcomes of ESD are therefore necessarily associated with critical theory (Luke, 2003).

2.4.3 Critical theory

The notion of transformative learning, or transformative education developed from the field of critical theory that originated during the 1920s at the Institute for Social Research in Frankfurt (Peters, Lankshear & Olssen, 2003). The term 'critical theory' was coined by Horkheimer in 1937 to describe the philosophical and theoretical basis of work undertaken by the Frankfurt School, although the definition of the term changed and broadened over time (Peters et al., 2003). Although the early work centred on Marxist ideologies with the overriding goal to highlight the "critical function of Marxist theory as a form of opposition to bourgeois society" (Peters et al., 2003, p.3), the nature and focus of research broadened as new school members brought new perspectives. However, Horkheimer (1982) maintained a definition of critical theory that remains useful today: critical theory is related **not** to content, but to a philosophy directed mainly towards changing society in ways that "liberate human beings from the circumstances that enslave them" (p.244). This definition incorporates the idea that "man [sic] can change reality, and the necessary conditions for such a change already exist" which implies that, unlike traditional positivist style outlooks on the world, humans are the "producers of their own historical way of life in its totality" (Peters et al., 2003, p.3). Horkheimer valued the idea that humans are reflexive conscious beings, and that social reality is contextual (Horkheimer, 1982; Horkheimer & Adorno, 1972). It is this aspect or understanding of critical theory that informs the processes of transformative education identified as essential components of ESD.

2.4.4 Critical theory as transformative education

Transformative education has been inconsistently related to various teaching practices and epistemological ideals, and various cultural and structural aspects of society (Schugurensky, 2002). Although widespread use of the term emerged during the 1970s, there remains no single definition. The underlying principles of transformative education arose from a collection of ideas from many philosophers influenced by various social contexts, particularly the work of Paulo Freire, Antonio Gramsci and Karl Marx; "no education is politically neutral" as traditional education works to maintain the social status quo, particularly in relation to the overriding injustices or asymmetric power relations in society (Wink, 2000, p.77). This belief grew in response to an increasing awareness that social power asymmetries were defined and maintained not only by physical means, but equally well by knowledge (Gramsci, 1971), as "education is knowledge and knowledge is power"

(Swain, 2005, p.1). Karl Marx for example, saw education as "an insidious vehicle for institutionalizing elite values and for indoctrinating people into unconsciously maintaining" social power asymmetries (cited in Wink, 2000, p.83). In light of this, emancipation (or transformation) was envisaged to begin with the development of critical awareness of "social, economic and political dynamics of everyday situations and practices" (Schugurensky, 2002, p.61). This is the aim of critical pedagogy.

Critique, in terms of critical pedagogy, is about embracing critical perspectives. A common misconception is that critique is a negative process restricted to criticism; however, here it refers to a much deeper level of understanding that incorporates "seeing beyond" or finding new ways of understanding complexities, particularly in relation to self and the social world (Wink, 2000, p.29). The application of critical pedagogy however, does not guarantee that critique is holistic, or unaffected by the discourses through which it is practiced. Early practice of critical pedagogy reflected the prevailing "anthropocentric Marxist paradigm that assumes that humans are different from other species because of their ability to make choices" (Spring, 2004, p.132), and as such that nature is valued, understood and utilised only in terms of human needs (Bowers, 1991). Similarly, much of the work of Habermas (1972; 1975) reflected values that placed nature in a "primal position prior to society" (Luke, 2003, p.239). Alternatively, critique conducted from a science-based positivist worldview may embrace Cartesian dualist views that objectify the environment, and which assume that issues relating to human–environment relationships may be assessed right or wrong (Bowers, 1991). All of these are contrary to the reality of the social world where human action reflects a complex web of motivations and intentions, and contrary to desired ESD outcomes of holistically understanding the reality of dynamic and complex human–environment relationships. In the broadest sense, critical pedagogy acts as a pedagogy of transformation by teaching students to ask "for reasons why things are the way they are and why others (and oneself) act as they do" (Mogensen, 1997, p.430).

Since its inception, the notion of critical pedagogy has evolved in response to changes in society, and more recently, in relation to developing environmental perspectives. Before his death in 1996, Freire had begun to modify his ideas to incorporate environmental concerns, highlighting the need for a critical pedagogy he referred to as "ecopedagogy" (Spring, 2004, p.132), in order to critique the contribution of capitalist ideals to modern human–environment relationships. Gadotti (1994) built upon this idea to define "planetary consciousness" as a more holistic alternative pedagogical focus (cited in Spring, 2004, p.133). Irrespective of the intended focus or ultimate aim of any critical pedagogy, the practical application of pedagogy determines its effectiveness. The understanding that the most effective critical pedagogy encompasses understandings unique to a place and time became known as socially-critical pedagogy (Giroux, 1988).

2.4.5 Socially-critical pedagogy for learning

The notion of socially-critical pedagogy was founded on the understanding that learning is only truly effective when developed within contexts related to a students' life experiences (Giroux, 1988)—that is, within their "community" (Mogensen, 1997, p.434). Socially-critical pedagogy deliberately and specifically deconstructs political, social and economic motivations for human action, thereby providing commentary on human values, value priorities, attitudes and beliefs (Fien, 1993). However, a pedagogy which engages students in considering the complexity and dynamic nature of such human ideas supports the outcomes of ESD as "it is action on the basis of comprehensive reflection which decisively changes the conditions of human life" (Mogensen, 1997, p.431).

The effectiveness of any socially-critical pedagogy also reflects the manner in which students partake in such significant and contextually specific experiences. This is highlighted by Freire's (1972) early work in which he identified two main educational forms with opposing relationships between power and school education—"banking" and "liberation" education—where students are positioned as either a "passive subject" or "active actor" respectively (Swain, 2005, p.1). The role of the learner as an active actor is central to socially-critical pedagogy. Although critical pedagogy in general was seen to provide opportunities for developing awareness and engaging in effective critical reflection, Freire believed that this would be truly transformative only if accompanied by social action, or authentic participation (Schugurensky, 2002, p.63). In many ways this reflects Lucas' (1979) idea that learning *about* sustainable human–environment relationships from others does not necessarily lead to similar action. Transformative learning, or learning that empowers individuals to participate in the development of sustainable human–environment relationships, comes only from direct participation in these behaviours. This is the essence of socially-critical education *for* the environment as used in this research, as it encourages learning through:

> just, participatory and collaborative decision making, and involves critical analysis of the development of the nature, forms and formative processes of society generally and of the power relationships within a particular society, thus revealing how the world works and how it might be changed (Gough, 1997, p.107).

Similarly, Gruenewald proposed a "critical pedagogy of place", as an approach which draws upon the ideals of both critical pedagogy and place-based education to contextualise education in ways that enable students to "interrogate the intersection between cultures and ecosystems" (2003, p.10) so that it has a "direct bearing on the well-being of the social and ecological places people actually inhabit" (2003, p.3). In addition, if ESD through socially-critical pedagogy is to be most effective, Schugurensky (2002) points out that student participation must be legitimately incorporated throughout the organisational structures of their schools, as:

> when people have the opportunity to actively participate in deliberation and decision making in the institutions that have most impact on their everyday lives, they engage in substantive learning and can experience both incremental and sudden transformations. The transformative effects are usually more significant when this institutional participation provides empowering experiences (p.67).

Freire (1994) believed that in the absence of authentic participation, socially-critical pedagogy not only failed to lead to behavioural change, but actively discouraged such change.

> Critical reflection, without an accompanying effort of a social organisation and without concurrent enabling structures to channel participation in democratic institutions, can nurture the development of individuals who become more enlightened than before, but who (because of their realisation of the immense power of oppressive structures) may become more passive and skeptical than before (Schugurensky, 2002, p.62).

This effect may be caused by a tendency of social critique, in the absence of authentic participation, to emphasise negative relationships which contribute to student despair and feelings of being unable to influence their world. It is therefore essential that students are engaged in positive or "empathetic and optimistic" reflection orientated towards solutions to which they can personally contribute (Breiting, Meyer & Mogensen, 2005). This is supported by John Dewey's ideas that democracy as an ideology cannot simply be studied, but must be lived to be understood, and that this lived experience must be accompanied by a "language of possibility"—a belief that as an individual there are opportunities for positive change (Fien, 1993, p.10; Wink, 2000). In other words, effective learning through a socially-critical pedagogy depends on the manner in which it is implemented by teachers.

2.4.6 Socially-critical pedagogy and teachers

In order to best achieve the outcomes of social transformation through socially-critical pedagogy, Gramsci (1971) noted that educators must first "recognise and acknowledge the existing oppressive structures inherent in schools" in order to actively empower learners to change "beliefs into behaviours for self and social transformation" (cited in Wink, 2000, p.82, 85). In other words, transformative education, or the ideals of transformative learning, requires educational processes to change from indoctrinating learners into accepting existing social structures, to empowering learners to actively shape, or indeed re-shape, their society. Both educators and learners are integral to the transformative process undertaken through critical pedagogy as:

> a way of thinking about negotiating and transforming the relationship among classroom teaching, the production of knowledge, the institutional

> structures of the school, and the social and material relations of the wider community, society, and nation state (McLaren, 1998, p.48).

This, however, is an enormous undertaking. "It is a very strong indictment to say that our conventional educational institutions are defunct and bereft of understanding of our present planetary crisis" and "transformative education fundamentally questions the wisdom of all current educational ventures" (O'Sullivan et al., 2002, p.10). In other words, the practice of socially-critical pedagogy, as transformative ESD, is a radical process that requires educators to question their current educational practices and the broader practices of the society to which they contribute, in order to build the capacity of their students to reflect critically on the dominant human–environmental relationships supported by their society. In order to embrace ESD, educators must actively challenge today's dominant political values from which today's "relentless and expansive exploitation of nature" and the underlying notion that equality is a measure of equal access to consumer goods evolved (Luke, 2003, p.239). They must find ways to redirect current economic and consumerist educational outcomes to goals that are more aligned with sustainable development. All of these require educators to challenge existing human-centred ideals with educational theories and practices that view human life as an integral component of earth's natural systems (Spring, 2004).

Socially-critical education implies dissatisfaction with current dominant social paradigms, many of which may be directly threatened by critical appraisal of their environmental ideologies. However, in a democratic society, the notion of educating for a specific type of social transformation, even with agreement regarding the nature of the transformation desired, understandably attracts concern. Some of the criticisms of the goals and practices of socially-critical approaches to environmental education were discussed in Section 2.3.2.

2.5 DEVELOPMENT OF SOCIALLY-CRITICAL ESD IN AUSTRALIA

The development of environmental education in Australian schools, in terms of both policy development and classroom practice, has been well documented by Fien (1993) and Gough (1997). By the late 1990s, Australian educational agencies began to re-consider their roles and responsibilities in defining and implementing environmental education in light of the developing notion of ESD. In 1999, the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) acknowledged the importance of environmental education as Goal 1.7 of The Adelaide Declaration on National Goals for Schooling in the Twenty First Century:

> Schooling should develop fully the talents and capacities of all students. In particular when students leave school they should have an understanding of, and concern for, stewardship of the natural environment,

and the knowledge and skills to contribute to ecologically sustainable development (MCEETYA, 1999, p.1).

In 1999, the Department of the Environment and Heritage (DEH) established an educational reference group to explore ways in which Australian schools should respond to the United Nations Agenda 21 framework for environmental education. Their discussion paper, *Today Shapes Tomorrow: Environmental Education for a Sustainable Future*, defined environmental education as:

- raising awareness
- acquiring new perspectives, values, knowledge and skills; and
- formal and informal processes leading to changed behaviour in support of a sustainable environment (DEH, 1999, p.4).

The paper noted that, despite the government rhetoric advocating sustainable development, "actions have failed to adequately reflect these commitments to environmental education" (DEH, 1999, p.22), as environmental education was isolated within schools and focused towards knowledge acquisition and attitudinal change. They concluded that effective education for sustainability required "comprehensive, lifelong environmental learning integrated within education systems, industry, social organizations/neighbourhood groups and government" as the "transition from awareness to knowledge and action must be owned by all" (DEH, 1999, p.22).

This paper informed the Australian Government's *Environmental Education for a Sustainable Future: National Action Plan*, which was launched in 2000 as the "starting point for an enhanced national effort in support of Australia's ecologically sustainable development ESD" (DEH, 2000, p.3). This plan acknowledged that environmental education must: involve everyone; be lifelong; be holistic and about connections; be practical; be in harmony with, and of equal priority to, other social and economic goals (DEH, 2000). Although the action plan was not intended to be a definitive model for environmental education, several important aspects of the earlier discussion paper were poorly represented, typified by the statement that a key element of environmental education "is a move from an emphasis on awareness raising to an emphasis on providing people with the knowledge, values and skills to actually make a difference to the protection and conservation of the Australian environment" (DEH, 2000, p.3). This outdated notion of environmental education embraced a parochial view of local conservation rather than a global perspective, and associated education with the delivery of appropriate ideas, or values, as instigating effective behavioural change. The role of knowledge acquisition was somewhat qualified by the statement: "Specialist discipline-based knowledge, while contributing critically, is no longer adequate by itself—an holistic appreciation of the context of environmental problems is essential" (DEH, 2000, p.4). In other words, the base line for evaluating good environmental education continued to be associated primarily with the

acquisition of knowledge and understanding, rather than by outcomes evidenced by individuals' actions.

A critical element of the Action Plan was the establishment of several non-statutory bodies to initiate, monitor and evaluate environmental educational initiatives, provide expert advice to government, and collaborate to develop a national approach for environmental education presented as the *National Environmental Education Statement for Australian Schools - Educating for a Sustainable Future.* This statement, endorsed by the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA), represented the first national approach to environmental education to be endorsed by all Australian federal, state and territory governments, and reflected the growing understanding at the time that effective environmental education was indeed a priority (DEH, 2005).

Although this statement generally supported the visions and sentiments of environmental education outlined in preceding Australian government documents, it did succeed in more comprehensively highlighting the global and holistic nature of environmental education by relating it to the "interdependence of social, cultural, economic and ecological dimensions at local, national and global levels" (DEH, 2005, p.8). Most importantly, the statement directly acknowledged "action and participation" as essential outcomes of environmental education, and indicated (although did not state specifically) that changes towards a socially-critical pedagogy were desired. The educational "vision" for students was that they become "active, self-directed and collaborative learners and ethical and responsible citizens taking action for a sustainable future" (DEH, 2005, p.8) by developing:

- a willingness to examine and change personal lifestyles to secure a sustainable future;
- the ability to identify, investigate, evaluate and undertake appropriate action to maintain, protect and enhance local and global environments;
- a willingness to challenge preconceived ideas, accept change and acknowledge uncertainty; and
- the ability to work cooperatively and in partnership with others (DEH, 2005, p.10).

The vision for teachers similarly hinted at a need for change, as they were to become "enthusiastic about teaching and about developing effective relationships with their students, committed to the goals of education for sustainability, life-long learners, adaptable, and open to new ideas and teaching strategies" (DEH, 2005, p.8). However, the document contained mixed messages about how such 'visions' for environmental education should be incorporated in classroom practice. The most direct reference to socially-critical pedagogy for environmental education was reflected by the understanding that:

> An environmental education for sustainability curriculum involves understanding the present—how it has been shaped, the value in which it is held, and seeking to mitigate adverse effects on it. This involves an investigation of how we have come to this situation and accepting responsibility to work towards a sustainable future (DEH, 2005, p.13).

The suggested teaching strategy for this is outlined as an inquiry learning model incorporating experiential learning and science in the community. In a move away from traditional transmissive pedagogy, learning through social action is encouraged through a requirement that "students be active in decision making during the inquiry and at its conclusion" (DEH, 2005, p.21).

In 2007, the Australian government presented a national strategy for fostering sustainable development through environmental education: *Caring for Our Future – The Australian Government's Strategy for the United Nations Decade of Education for Sustainable Development, 2005-2014* (DEH, 2007). This strategy stated that "the Australian community will have the understanding, knowledge, skills and capacity to contribute to sustainable development and will embrace the intrinsic value of sustainability as a national aspiration" (DEH, 2007, p.4) but provided little evidence of encouraging actual action, or guidelines for how this should be achieved. In terms of "communicating the concepts" (DEH, 2007, p.5) of sustainable development, the strategy highlighted the need to foster collaborative partnerships between government, business and community, and supported the Australian Sustainable Schools Initiative (AuSSI) as one program through which this could be achieved.

2.5.1 The Australian Sustainable Schools Initiative, Victoria

In 2001 the Sustainable Schools Working Group was established to oversee the development and implementation of what was to become the Australian Sustainable Schools Initiative (AuSSI), an Australian Government initiative which aimed to assist schools and communities to move towards environmental sustainability by facilitating authentic co-learning opportunities as part of a whole-school approach to environmental education—in essence, to develop socially-critical ESD. In 2003, the AuSSI initiative began as an 18 month pilot study during which 300 schools across Victoria and New South Wales began to implement the Sustainable Schools Program (SSP).

In Victoria, 113 schools participated in the pilot study. SSP was funded jointly by the Commonwealth Department of Environment and Heritage (DEH) and the Victorian Department of Education and Training (DET) (Larri, 2004, p.16), and delivered by the Gould League and the Centre for Education and Research in Environmental Strategies (CERES). Facilitators from the Gould League and CERES assisted schools with implementation issues, provided teacher professional development and liaised closely with in-school SSP coordinators. This high level of support was crucial as, at this time, environmental education was not mandatory in Victoria,

and in many schools, neither teachers, nor students, were familiar with basic environmental concepts (Larri, 2004, p.17).

2.5.2 Aims of the Australian Sustainable Schools Initiative

The Sustainable Schools Program was developed to translate into effective educational practice the critical elements of government documents and statements which advocated environmental education as the essential precursor to sustainable development. The program was predicated on several key understandings that had been poorly expressed in education policies. The most important of these was the understanding that building awareness of environmental issues does not necessarily predict the willingness or ability of people to undertake pro-environmental behaviour (Hungerford & Volk, 1990), as "there is often little or no relationship between attitudes and or knowledge and behaviour" (McKenzie-Mohr & Smith, 1999, p.10). In other words, there was a growing understanding that effective education *for* the environment or *for* sustainable development depended not so much on what was taught, but on how it was to be taught. SSP positioned schools as communities which modeled environmental sustainability—places in which environmental learning embraced collaborative ventures which contributed directly to the sustainable operation of the school and community. The program outlined a twelve-step process, shown in Table 2.2, which aimed to facilitate a school's journey from awareness to action in a manner that brought with them not only teachers and students, but also communities.

Schools undertaking SSP began by implementing a core module of activities designed primarily to raise awareness within the school and school community, and to collect data regarding the resource usage of the school. This data informed the development of a plan to implement sustainable school management and operational policies, centred around four resource-based modules: water, waste, energy and biodiversity. The aim of the initial stages of SSP was to "foster school ownership and empowerment of their sustainability program with a focus on student involvement and learning" (Larri, 2004, p.18). Table 2.3 shows the conceptual model upon which SSP modules were based, and through which a school progresses to become a "working model of sustainability in their communities" (Larri, 2004, p.23).

Larri (2004) reported that Victorian schools participating in the SSP pilot study viewed the program as "an holistic approach to our environmental management and sustainability programme and its integration into teaching and learning" (pp.42-43). They believed that the program would be easy to implement as it "provided a mechanism for managing change by providing structure, direction and momentum" (p.40). They also valued the associated accreditation scheme which formally acknowledged and rewarded schools for the completion of each module, and was seen as a way in which to increase community awareness of the environment and schools' engagement with sustainability issues (Larri, 2004).

Table 2.2 The twelve-step implementation process for the Sustainable Schools Program (Larri, 2004, p.18)

Key Element	Why this element is important
Introduction to sustainability	Provides a vision, unity, an understanding of the issues and a broad plan for the future. Without this introduction, there will be no common purpose or vision.
Collect baseline data	Provides key information against which future change can be measured. Provides a reference point to track progress.
Make a whole school commitment	A commitment from all sectors of the school to become more sustainable is crucial for a whole school change. Ensures change will develop beyond isolated pockets in the school, breaks down resistance.
Form a committee	A committee, with representatives drawn from teachers, parents, students and specialist advisors, will give ownership to all sectors in the school and a structure to ensure that the workload is spread over the group. A committee shares the load among dedicated teachers and provides ownership by the rest of the school.
Conduct an assessment / audit	Assessment and audits can give reliable information on how resources are used in a school and how waste and litter is being generated. A plan provides certainty.
Set goals and targets	By setting goals and targets, a school will focus on achieving measureable outcomes with clear direction.
Develop a policy	A policy embeds a programme in a school, gives the programme long-term approval.
Develop action plans	Action plans provide a structure and a sense of organisation to achieve outcomes.
Develop curriculum plans	Curriculum plans identify where sustainability is being covered in the school's curriculum and set an operationally coordinated approach.
Implement actions and curriculum plans	Implementation is the essential and exciting step for staff and students.
Monitor and evaluate the programme	Monitoring and evaluation assists a school to constantly re-evaluate its effectiveness and provide constant improvement in their programme.
Build community links	Community links enrich a school's programme bringing valuable resources, expertise and support to and from their wider community.

Gough (2004), in an evaluation of one aspect of the pilot SSP implementation (the Stormwater Action Project) in six Victorian schools attributed the success of the program to the "shared vision of teachers, students and parents that the environment has a high profile in the school" (p.29). Schools reported a wide variety of "educational benefits for students, social benefits for the whole school community, and professional benefits for teachers" (Larri, 2004, p.60). The core units of the program assisted teachers with "understanding the issues around sustainability" (Gough, 2004, p.29), and valued the opportunities to engage and learn with others (Larri, 2004). Teachers noted that the whole-school approach effectively encouraged their students to become involved in environmental decision making processes while adequately accommodating all students' learning needs and interests. This increased students' understanding and engagement in sustainability issues and motivated them to assume greater personal responsibility for their actions, as evidenced by reports that students initiated changes in their homes. In other words, implementation of SSP achieved behavioural change towards sustainable practices within schools and the wider community. Schools also reported that changes made in response to the initial resource auditing module provided significant resource and monitory savings, the latter of which were often reinvested into environmental education resources and activities. The majority of schools indicated that changes implemented through SSP, particularly those related

to the routine usage of resources such as water and energy, appropriate management of waste, and the maintenance of new equipment such as rainwater tanks, would prevail for at least one year (Gough, 2004; Larri, 2004).

Table 2.3 Conceptual model of the Sustainable Schools Program (Larri, 2004, p.23)

<table>
<tr><td>Level 8</td><td colspan="3">Schools are working as models of sustainability in their communities</td><td rowspan="2">Ultimate impacts</td><td rowspan="2">Intended longer term impacts of the AuSSI Pilot – criteria for success not yet clearly delineated</td></tr>
<tr><td>Level 7</td><td>PERSONAL RESPONSIBILITY
7a. Active and empowered students continuously work towards sustainability</td><td>SCHOOL SUSTAINABILITY
7b. Whole school change management is underpinned by decisions that work towards sustainability</td><td>COMMUNITY SUSTAINABILITY
7c. Changes in the wider community are based on decisions that work towards sustainability</td></tr>
<tr><td>Level 6</td><td colspan="3">Schools monitor and evaluate their plans, review and modify them as required, record benefits (environmental, economic, educational and social), and celebrate and build on their achievements</td><td rowspan="3">Resource themes / modules</td><td rowspan="3">Successive completion of each Resource based module or theme through:
• A process of policy development, action planning, and curriculum planning;
• Then implementation of action plans, monitoring, review, and celebration of achievements</td></tr>
<tr><td>Level 5</td><td colspan="3">For each resource theme, schools implement the action plans and curriculum plan, and builds links to the wider community</td></tr>
<tr><td>Level 4</td><td colspan="3">For each resource theme, schools develop a policy, action plans, curriculum plans</td></tr>
<tr><td>Level 3</td><td colspan="3">Schools make a whole school commitment to become a Sustainable School, with long-term goals and targets for operations, curriculum, whole school engagement across four resource themes</td><td rowspan="3">Core Module</td><td rowspan="3">Completion of the Core Module “Becoming a Sustainable School” is equivalent to achieving Levels 1, 2, and 3. This is documented by the 4-Year Plan which includes:
• The baseline data set and results of curriculum audits
• An agreed school vision, as well as
• Sub-strategies to achieve action in each of the resource areas (i.e. Waste, water, energy, and Biodiversity).</td></tr>
<tr><td>Level 2</td><td colspan="3">School communities develop a deeper understanding of what it means to live sustainably and a shared vision of their school as a Sustainable School</td></tr>
<tr><td>Level 1</td><td colspan="3">Schools are aware of their current situation and identify the drivers and barriers to becoming a Sustainable School</td></tr>
</table>

While these reports indicated that the implementation of SSP was successful in achieving some critical environmental educational aims, other reports can be interpreted to indicate that some of these changes were temporary. Many schools felt that SSP facilitators did not always understand or appreciate operational issues or the difficulties faced by schools trying to implement change. Despite this, most schools were concerned that SSP facilitators were not a permanent resource (Larri, 2004). This implies that, although the core modules aimed to assist

schools to develop ownership of the change process, schools had not achieved a state of confidence or self-sufficiency in their journey towards becoming more sustainable.

2.6 THE ENVIRONMENTAL EDUCATIONAL RHETORIC–REALITY GAP

Despite consistent calls for ESD for many years now, uptake of effective ESD in Australian educational policy and classroom practice has been slow (Fien, 2001; Tilbury et al., 2004). This illustrates the common observation that teaching practices have an inertia that is difficult to shift (Scott & Gough, 2003). The "lack of coherence between learning objectives and the practice of teaching" (Sørensen, 1997, p.179), referred to as an educational rhetoric–reality gap (Stevenson, 1987; 2007a), has been attributed to myriad causes, including deficient teacher training, insufficient teacher knowledge, and a lack of school resources (see for example Barrett, 2007; Chapman, 2004; Fien, 1993; Grace & Sharp, 2000; McKeown, 2002; Palmer, 1998; Robertson & Krugly-Smolska, 1997; Spork, 1992; Thomas, 2005; Vongalis-Macrow, 2007, 26-29 November).

Environmental education rhetoric–reality gaps have been an observed phenomenon in Australian schools since the first calls for environmental education to depart from traditional science, knowledge-based instruction during the 1970s (Section 2.3.3). An extensive investigation of the status of education *for* the environment in Australia during 1982 revealed significant rhetoric–reality gaps. At this time, teacher practices: were not "interdisciplinary"; did not provide opportunities for "problem solving"; avoided controversial issues which required confronting "values"; and failed to place learning in outdoor or real world contexts. In general, teachers viewed the environment as "nature", excluding important human–environment relationships of the more "urban" regions which represented most students' "own local environment" (Stapp & Stapp, 1983, p.5). The investigation concluded that teachers tended to act as "conveyors of information, not facilitators" with a "strong emphasis in the higher grades on academic achievement" (Stapp & Stapp, 1983, p.5). In 1984, a similar study concluded that Australian educators taught in a manner in which the environment was "portrayed as somewhere where people do not live. The focus is on the natural and the nice and not connected at all with the everyday real experiences of living in towns or cities" (Bishop & Russell, 1985, p.14).

The development of such educational rhetoric–reality gaps is not unexpected, as the socially-critical and transformative educational goals of education for the environment, and more recently, ESD, demand that educators and institutions alter ways of thinking that have underpinned educational routines that traditionally act to reproduce current social relationships (Kemmis, 1991), goals that ideologically and practically contradict ESD outcomes. In other words, environmental education programs, and the social and political discourses demanded by socially critical pedagogies, are inherently political such that "if properly implemented, they could be most threatening" (Greenall, 1987, p.13) for teachers, particularly during instances of

conflict between their own views and those presented by the school, students and their families (Linke, 1984). In light of the challenge of such a significant change, Scott and Oulton note that teachers and schools have been poorly guided by "a bewildering mixture of often contradictory instruction", particularly in terms of maintaining a traditional academic assessment process while implementing learning that addresses the socially-critical, transformative goals for sustainable development (1999, p.90). Many teachers do not believe that they either have the expertise to undertake such teaching, or that it is their responsibility to do so (Fien, 1993).

More than anything else, the long-established rhetoric–reality gap in ESD suggests that the theory of environmental education is "not sufficiently grounded in teachers' experiences and in what they feel schools can do, or what the school day is really like" (Robertson & Krugly-Smolska, 1997, p.232). A socially-critical approach to ESD is impractical in that it not only fails to provide teachers with an "implementation" framework, but "denies their own practical knowledge" (Walker, 1997, p.5). Stevenson (2007a) however, predicts that despite the "substantial" rhetoric–reality gap in environmental education, with increased dialogue and "research for addressing the gap", the "possibilities for enacting critical and substantive environmental education practices in schools" can be identified (p.137), particularly if the nature of the rhetoric–reality gap is re-conceptualised so that "practices in schools are not simply assessed in relation to policy discourse but policy discourse itself is re-examined in relation to teachers' practical theories and the contexts shaping their practices" (p.265). Thus, there remains "a need to provide updated information on many aspects of environmental education in the school curriculum to inform policies for curriculum development and teacher education" (Lee & Williams, 2001, p.218).

2.7 SUMMARY

This chapter traced the history of the development of ESD as effective education *for* the environment. As I reviewed the documents from which this history was compiled, I found that they focussed almost entirely on the desired outcomes of ESD. Embedded within outcome statements were the assumptions that not only could ESD learning outcomes be pre-determined, but that students would embrace ESD and actively respond to what they learned. In light of these assumptions, programs such as SSP endorsed socially-critical pedagogy as the most appropriate method through which to implement ESD. However, as documents failed to indicate how the practice of ESD related to the ontology of the educational environments in which it was to be implemented, it was difficult to assess the relationship between stated ESD outcomes and student learning, or the appropriateness of socially-critical pedagogy. Chapter 3 outlines the ontological framework that I used to understand the educational environments and pedagogical practices through which ESD outcomes are to be achieved, and which underpinned my investigation of the development of rhetoric–reality gaps in the practices of teachers implementing SSP.

3 THE THEORY OF STRUCTURATION AS AN ONTOLOGICAL FRAMEWORK—A LITERATURE REVIEW

3.1 INTRODUCTION

In this chapter I review Giddens' theory of structuration as it has been represented and reported in the research literature. This theory uses a duality of structure and agency to inform an ontological framework for "the kinds of things and relations that are there to be known" in the way that humans interact and societies are constituted (Stones, 2005, p.32). I also explain the way in which specific aspects of structuration as an ontological framework underpinned the design and practice of this research, and provide reasons for these through examples and recommendations from the literature.

3.2 AN ONTOLOGICAL FRAMEWORK

Sociologists have long sought to understand human social phenomena, that is, the forces and processes that shape societies and human action (Cohen, 1989, p.9). Traditional approaches focussed on exploring the structural aspects of a society and human action separately in order to determine their roles and relative dominance (Archer, 1982). Structuralist and functionalist[2] views of society attributed human social phenomena to various combinations of constraining and directive effects of structures or systematic circumstances—objective forces not controlled by individuals (Cohen, 1989, p.9). Alternatively, voluntarist views of society attributed social phenomena predominantly to subjective factors—the hermeneutic and phenomenological[3] nature of humans—placing individuals as the primary determinants of social phenomena (Rose, 1998, June 4-6). These opposing views formed the basis of myriad theories and models that effectively compartmentalised and isolated aspects of human social experience (Mouzelis, 2000). Considered together however, these ideas suggest that apparently dominant voluntarist or structural factors are complex and dynamic and that social phenomena may be better understood using a more holistic approach that recognises relationships between the nature of human action and social structure. The validity and/or nature of such relationships, and the manner in which they may be practically modelled, have long been debated (Sawyer, 2002). During the 1970s, Anthony Giddens expressed the potential, interrelated influences of individual character and social structure on directing human action in his theory of structuration, hereafter referred to as structuration (Giddens, 1976, 1979, 1984, 1991b; Giddens & Pierson, 1998). Structuration provides an ontological framework in which "structure and agency are held to be irreducible to each other and causally efficacious, yet necessarily interdependent" (Willmott, 1999, p.5). The development of structuration as an ontological framework redressed

[2] Structuralist and functionalist ideas most significantly differ in their understanding of how humans analyse and choose to respond to their environments—in a passive or active manner respectively.
[3] Hermeneutics refers to the practice and theory of understanding in human contexts, while phenomenology is a descriptive methodology employed in the study of humans and human experience.

the traditional priority given to epistemology, or 'knowing', in sociological research, as Giddens believed that the understanding of 'being' had been incompletely and poorly explored (Stones, 2005, p.33). In this research, such an ontological focus should expose perspectives and ideas about the interplay of structure and agency within an educational setting that may otherwise have been masked by more traditional epistemological-based approaches (Willmott, 1999, p.5; Yates, 1997).

In order to answer the research questions presented in Chapter 1 it was essential to investigate the influence of, and relationships between the subjective and objective factors which influence teachers' classroom practices. This required an exploration of the nature of human action, or agency, that underpinned teachers' practices.

3.3 HUMAN AGENCY

The notion of agency, or the nature of human social action, is fundamental to sociological research, and foremost in the quest to understand the way in which teacher practices create rhetoric–reality gaps. Agency is a complex and multifaceted concept—"an abstraction greatly underspecified, often misused, much fetishized these days by social scientists" (Comaroff & Comaroff, 1997, p.37). The term has been complicated by a plethora of definitions, including for example, free will and intention (Davidson, 1980), and power and resistance (Goddard, 2000; McNay, 2000). Confusion has also arisen from inconsistent use of the terms actor and agent. Traditionally, "actor refers to a person whose action is rule-governed" while agent "refers to a person engaged in the exercise of power" (Ahearn, 2001, p.113). This reflects a tradition to define agency according to an assumed relationship to social structures, and therefore, within either objective or subjective social paradigms. Objective social perspectives view human agency as responses to factors external to the individual, including social discourses or written and unwritten laws (Arts, 2000). This objective perspective assumes that humans lack agency, acting as "automata", such that actions do not reflect conscious choice (Loyal & Barnes, 2001, p.507). Subjective social perspectives attribute human agency to free will. Human agency is seen to reflect personal preferences and motivations directed by values, attitudes and moral ideals (Gynnild, 2002). This subjective perspective assumes that humans may "act independently of and in opposition to, structural constraints" (Loyal & Barnes, 2001, p.507).

Attempts to attribute human agency unilaterally to either objective or subjective factors do not adequately encapsulate the breadth or complexity of social phenomena (Arts, 2000). In particular, this subjective–objective dualism provides little insight into many critical motivations and overriding characteristics of human action, particularly those which reflect:

- opposition or compliance with structural constraints;
- support of, or resistance to, power asymmetries in society;

- conscious deliberation and motivation, or unconscious, unintended and unmotivated causes;
- outcomes that are effective or unsuccessful, and which yield expected and/or unforeseen consequences;
- the degree of prior knowledge, practice and/or mastery;
- the manner in which actions are interpreted; and
- differences between individual action and the organised or collaborative action of groups (Cohen, 1989; Rose, 1998, June 4-6).

In light of these, Ahearn (2001) proposed that human agency be provisionally defined as "the socioculturally mediated capacity to act" (p.112). This definition acknowledged the interaction of objective and subjective factors in determining human action as well as interpreting that action. However, such factors are not necessarily discrete and definable entities. Human agency is not a simple series of isolated acts, but a "continuous flow of conduct" (Giddens, 1979, p.55) in which interactions between objective and subjective factors are complex, and in most contexts, continuous and dynamic (Archer, 1982; Cohen, 1989). In practice this indicates that determining the degree to which multiple objective and subjective factors interact to influence any specific human action is improbable. This task is made all the more difficult by the fact that any action is also, in part, determined by the relationship between such factors and an individual. These relationships reflect an individual's understanding of relevant objective and subjective factors. In other words, individuals are knowledgeable, and their actions reflect their unique knowledge (Turner, 2003a).

This research engages Ahearn's (2001) definition of human agency. Answering the research questions established in Chapter 1 required understanding the ways in which objective and subjective factors influenced the teachers' practices in the development of educational rhetoric–reality gaps. In turn, this required investigation of teachers' knowledge of the objective and subjective factors relevant to the social context in which their actions took place. The nature of this knowledge, or "knowledgeability" (Giddens, 1984, p.21), was therefore central to understanding teacher practices and the rhetoric–reality gaps investigated.

3.4 KNOWLEDGEABILITY

The ability of individuals to alter their actions, regardless of prevailing objective and subjective factors, requires a degree of understanding about the nature of human action and social phenomena. Many human actions arise from deliberate and conscious decisions, while other actions are apparently spontaneous with little or no preparatory reasoning. This has led to the idea that human actions are influenced by three distinct forms of knowledge: unconscious, conscious and non-conscious.

Unconscious knowledge is considered to consist primarily of desires—the unconscious motivational drivers of action (Loyal, 2003). Stones (2005) referred to this knowledge as general dispositions, or transposable skills, which include: values (a personal version of actual or potential reality and attitudes); worldviews (beliefs, derived from personal values, about the way the world is, or should be); habits of speech and gesture (Rohan, 2000); and methodologies for adapting this generalized knowledge to a range of particular practices in particular locations in time and space" (Stones, 2005, p.88). This knowledge forms a critical component of an individual's ability to maintain ontological security[4] (Section 3.10).

Conscious knowledge, often referred to as discursive or propositional knowledge, consists of the reasons or motivations able to be expressed by individuals to justify their behaviour (Loyal, 2003; Polanyi, 1958). Conscious knowledge forms the basis of ideologies (set of beliefs that contain explicit and/or implicit references to values), and both honest and false explanations of behaviour (Giddens, 1979; Stake, 2001). Conscious knowledge also includes the conscious decisions to act in ways that prioritise the influence of different forms of knowledge. For example, the positivist approach of science deliberately places conscious or propositional knowledge above all other forms of knowledge, while more naturalistic endeavours consciously acknowledge the importance of non-conscious and unconscious knowledge as essential for understanding the richness of human experience (Stake, 2001).

Non-conscious knowledge is also referred to as tacit knowledge, or practical consciousness, and social knowledge (Giddens, 1984; Polanyi, 1966). Polanyi was the first to conceptualise tacit knowledge to explain the notion that "we can know more than we can tell" (1966, p.4). Stones (2005) preferred to use the term conjuncturally-specific knowledge to represent practical consciousness as "an agent's knowledge of the specific context of the action" and commented that "whilst such knowledge will be perceived, made sense of, categorized, ordered and reacted to, on the basis of the general-dispositional [unconscious knowledge], it is still analytically and causally distinguishable from these more transposable dimensions" (p.90). Non-conscious knowledge incorporates a person's general understandings of the world and their place in it (Stake, 2001). This knowledge reflects the shared social and cultural expectations of particular situations and roles, or "social norms", which in turn reflects the values and value priorities of either individuals or social groups (Giddens, 1976) and which leads to the establishment of useful daily behavioural routines. The establishment of behavioural routines relieve people of the need to deliberately or consciously assess every aspect of every daily action and enable people to non-consciously act in ways that comply with social norms (Giddens, 1976). Each person's knowledge of social norms, and therefore their routinised behaviour, is a unique reflection of their life experiences and is bounded by the nature of the social contexts in which it developed. Such contexts incorporated physical aspects, in terms of time and place, as well as

[4] Ontological security refers to an individual's need to have a well defined identity, assisted through the development of behavioural routines in environments with stable expectations (Giddens, 1979).

less tangible perceptions of relative position within society (Leonard & Insch, 2005; Loyal, 2003). This indicates that social norms have the ability to systematically and powerfully affect human behaviour as they guide a person's: perceptions of social expectations; motivation to live up to social expectations; and attitudes towards different behaviours. In light of this, non-conscious knowledge has been viewed as the "cognitive and emotive anchor of the feelings of ontological security" (Giddens, 1991a, p.36), and the basis upon which feelings of obligation are formed (Cialdini, Kallgren & Reno, 1991).

Torff (1999) suggested that many aspects of a teacher's classroom practice may be considered intuitive, and therefore informed by non-conscious knowledge. Understanding of the role of non-conscious knowledge was therefore a precursor for understanding teacher practices and the development of educational rhetoric–reality gaps within the context of the classroom implementation of SSP. Each research participant fulfilled a variety of roles in their daily life, such as a tennis coach, choir member or parent, in addition to being a school teacher. Each of these roles encompassed multiple "role-sets" (Merton, 1967). For example, at school, each teacher was not only an educator, but also an employee, colleague and carer of children. Each role incorporated common types of interactions for which behavioural routines could have been established, and could have contributed to observed rhetoric–reality gaps (Stones, 2005). The classroom practices of teacher participants should therefore reflect not only their unique life experiences, but also their non-conscious knowledge of the cultural expectations of schools and education. Similarly, my actions and the actions of teachers during research activities, such as interviews, were predicated by non-conscious views regarding the role and expectations of educational research. This suggests that accounts of action provided by research participants may have been structured in reference to assumed expectations or perceived social norms, reflecting non-conscious ideas rather than exposing conscious decisions for their classroom practices. In other words, personal accounts of action do not necessarily reveal the full connection between action and the knowledge that influenced it.

The relationship between knowledge and action is highly complex and dynamic, as any specific action will incorporate aspects of all three types of knowledge. However, any human action, irrespective of the underlying motivations, tacit understandings or deliberate planning, may create both intended and unintended consequences (Giddens, 1979). The study of a rural region along the south coast of Western Australia by Curry et al. (2001) provides an excellent example of unintended consequences. A decline in agricultural profitability coincided with increasing numbers of people searching for affordable rural land in which to develop an alternative, environmentally peaceful lifestyle "removed from the excesses of capitalism and consumerism" (Curry et al., 2001, p.110). As increasing numbers of people relocated to rural regions, the character of those regions changed: population density and land prices increased dramatically, and city-style business economies developed to meet population needs. As the consequences of even the smallest and simplest of actions cannot be predicted, people must continuously up-date

their knowledge of the nature of human action and social phenomena in order to choose actions most likely to provide desired results.

Giddens (1979) described the process of acquiring social knowledge as a "continuous flow of conduct" to reflect the fact that individuals continuously re-interpret prior knowledge in order to refine and incorporate new ideas (p.55). This process has been referred to as intentionality (Giddens, 1979), reflexivity, and reflexive monitoring (Loyal, 2003). Reflexive monitoring and subsequent behaviour modification is a conscious task which enables people to build and maintain appropriate non-conscious knowledge regarding social norms (Giddens, 1979). Figure 3.1 represents how reflexive monitoring informs an individual's behaviour and the context for that behaviour, and vice versa (Loyal, 2003).

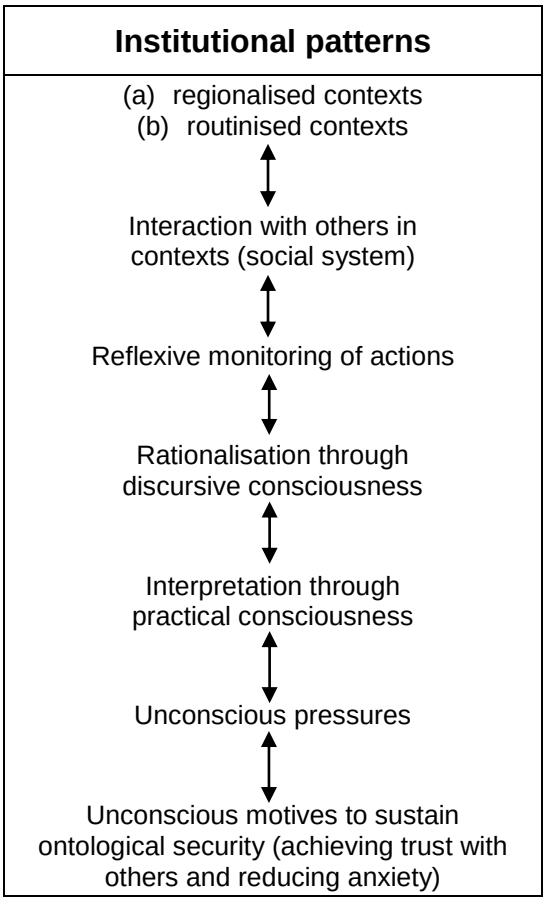


Figure 3.1 Giddens' notion of the dynamics of human agency (Adapted from Giddens, 1979, p.57; Turner, 2003a, p.484).

Giddens (1979) considered individual knowledgeability to be the vehicle through which human action could be understood. More specifically, it was the boundaries of this knowledgeability, in terms of intentions, motivations and consequences, that he perceived to be the primary role of any sociological study. Thus, knowledgeability was central to the aim of this research to understand the nature of rhetoric–reality gaps, particularly the role of intentions and motivations in teacher practices. As teacher practices represent a complex interrelationship between teacher knowledgeability and the educational context, it was also essential to identify the educational structural components that worked to either constrain or enable teacher practices.

3.5 STRUCTURE

The notion of 'structure' is a complex and multifaceted aspect of social life. In sociological terms structures are abstract phenomena of pervasive social patterns or relationships, which in general, "make order out of some sets of things" (Lemert, 1997, p. 127) in ways that ensure this

order has a "degree of permanence" (Loyal, 2003, p.71). The term 'structure' traditionally implied that certain aspects of a society existed external to individuals, in a manner described by Levi-Strauss for example, as underlying codes of social interactions, or "relations of presence and absence" (Loyal, 2003, p.72). However, Giddens (1984) argued that such structures were not entirely independent of individuals, nor were they able to unilaterally control human action. The ability of an individual to carry out their intended actions reflected a complex interaction between the structures of legitimation, signification and domination—interpretation of social rules (to derive meaning and moral ideals) and the power to access and exploit required resources (degree of domination in social interactions, Giddens, 1979; Giddens, 1984). Thus, rules, resources and power interact to form the basic structural elements of the social interactions which constitute teachers' practices, and the classroom environments in which these practices take place.

3.6 RULES

Socio-cultural rules strongly influence human action. These are not formally defined or legally enforceable laws (although most formal laws closely reflect socio-cultural expectations). These rules incorporate informal, implied and unarticulated social expectations, or the 'social norms', that work to mediate human behaviour. In other words "rules and practices only exist in conjunction with one another" (Giddens, 1979, p.65). Rules constitute a large portion of our non-conscious knowledge and provide the foundation for contextual behavioural routines in social interaction (see Section 3.4). Although people rarely learn social practices as rules, it is through rules that people understand how to communicate and behave appropriately in different contexts (Turner, 2003a). In order to understand the non-conscious factors that contributed to teachers' practices and the rhetoric–reality gaps that I identified, it was necessary to identify the socio-cultural rules embedded within their work environment, the school classroom. Such institutional rules are often associated with long-lived, well developed practices, or routines (Loyal, 2003).

The nature of socio-cultural rules has been extensively explored by Arts (2003a) and Turner (2003a) who built on Immanuel Kant's idea that there were two categories of socio-cultural rules: regulative and constitutive. Regulative rules enable people to identify the socially accepted and expected behaviours at different times, in different places, and according to the cultural character of the individuals present. Such rules reflect a society's moral expectations, and therefore enable people to legitimise[5] their own behaviour and to judge the behaviour of others. Regulative rules inform people of their rights and obligations within different social contexts. Constitutive rules inform the way in which people interpret events in order to create

[5] Legitimation occurs as an individual calls upon social norms or rules in order to justify the actions of themselves or others. An example might be "I was speeding because the traffic always speeds along this road" (Giddens, 1979).

signification[6], or derive meaning. These rules are essentially semantic—interpretative schemes of taken-for-granted understandings within different contexts. They encompass the shared understandings within a society that form the most critical elements of communication (Turner, 2003a). Constitutive rules underpin the way in which people organise their social interactions and make sense of actions undertaken by others (Jones, Edwards & Beckinsale, 2000). However, irrespective of the socio-cultural rules applicable to a context, an individual's ability to act in a preferred manner depends on their capacity to do so, and this reflects their access to resources (Turner, 2003a).

3.7 RESOURCES

Resources provide individuals with the means to interact, and are considered to be either allocative or authoritative in nature.

Allocative resources are physical resources. These products, or raw materials, used in everyday life may be used to control or direct patterns of social interaction. The unequal distribution of allocative resources contributes to unequal human relationships (Turner, 2003a). On the other hand, authoritative resources are non-physical, and relate to an individual's capacity to influence, direct or organise various aspects of social interaction, such as time, space or association. Authoritative resources represent the effects of behaviours which enable individuals or groups to effectively control the pattern of interaction for a given context (Arts, 2000; Taylor, 2003).

Allocative and authoritative resources are complexly interrelated. An individual with greater allocative resources may enjoy elevated authority, which in turn may provide access to additional allocative resources. Human agency is thus strongly influenced by access to both material and organisational resources, which together form the structural facilities used to dominate or control social interaction (Giddens, 1984). In other words, resources provide the means for obtaining power (Arts, 2000; Turner, 2003a). A teacher's ability to implement a specific pedagogy therefore depends in part, on their perception of, and access to, their power to do so. Understanding the nature of the rhetoric–reality gaps that I identified therefore required me to identify the effects of power relationships within teachers' work environments.

3.8 POWER

Power may be considered a "transformative capacity" as it reflects a person's ability to achieve specific outcomes from their actions (Giddens, 1979, p.88). Power is the result of the complex and dynamic interrelationship between contextually-specific rules and resources, and an individual's ability to exploit and mobilise these in order to create an asymmetric distribution of

[6] Signification refers to the common, and usually unspoken, understandings which influence an individual's actions in particular contexts, for example, whispering while within a place of worship, and standing to give an elderly person your seat on a bus (Giddens, 1979).

resources. Rules and resources also combine to mediate human interaction by defining social expectations for behaviour, shared meanings for communication, and appropriate sanctions for non-conformity. These in turn identify the relative power, or domination, of certain individuals in social interactions (Turner, 2003a).

Human agency is therefore intrinsically related to power (Rose, 1998, June 4-6). Traditionally, functionalist sociological approaches considered asymmetric patterns of power to be the sole determinant of human agency. Giddens (1984) however, argued that power structures are not absolute and that even the least-resourced individuals have the ability to successfully influence those who seem dominant. Knowledgeable humans have the ability to choose to use available resources in a manner that either resists or maintains a power structure, and that action leading to either of these outcomes does not imply the presence of conflict. In other words, social structures, rules and resources are both "constraining and enabling" with respect to human interaction" (p.25). Ongoing power hierarchies in social contexts reflect the complex interaction of human agency, knowledgeability, rules and resources in the establishment of regularised behavioural routines, that is, shared non-conscious knowledge. Continuing interaction, with appropriate communication and sanctions, within a specific context ensures that the presupposed power relations are maintained (Arts, 2000; Giddens, 1979, 1984; Loyal, 2003; Taylor, 2003; Turner, 2003a).

3.9 STRUCTURES AS EPIPHENOMENA

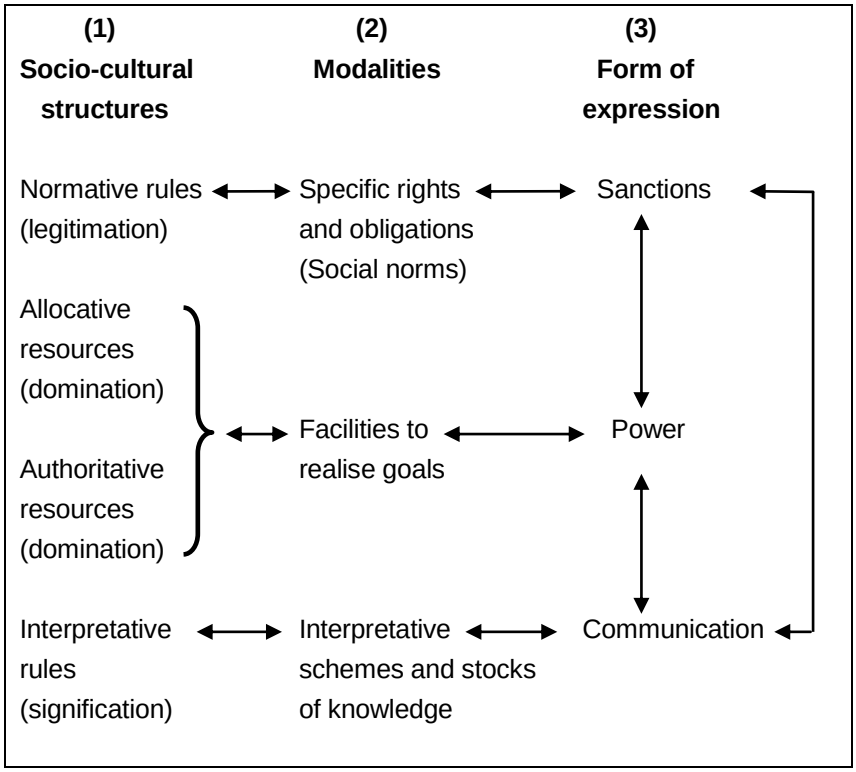
Giddens (1979) believed that socio-cultural structures that influence daily social life have no reality other than the way in which they are expressed through human action, or as they are remembered as socially expected codes of conduct. They are essentially epiphenomena: the rules and resources that reside solely within individuals as "knowledgeability in memory traces" and which are expressed only through the processes of social interaction (Stones, 2005, p.17). Figure 3.2 represents how such epiphenomena may form interpretative schemes, facilities and social norms, and that these are complexly interrelated (Giddens, 1984; Stones, 2005):

> The facility to allocate resources is enacted in the wielding of power, and produces and reproduces social structures of domination, and moral codes (norms) help determine what can be sanctioned in human interaction, which interactively produce structures of legitimation…thus, as human actors communicate, they draw on interpretative schemes to help make sense of interactions; at the same time those interactions reproduce and modify those interpretative schemes which are embedded in social structure as meaning or signification (Rose, 2000, pp.111-112).

According to this approach, structures not only exist only at the time and in the location in which they contribute to human action, that is, as they are "instantiated in social practices", but

they presuppose each other (Giddens, 1984, p.25). This understanding is fundamental to Giddens' theory of structuration. The role of socio-cultural rules, as epiphenomena, would have significant ramifications for this research. The educational rhetoric–reality gaps investigated will exist only when the social structures through which they are defined are 'instantiated' (Giddens, 1979). Paradoxically, my presence as a researcher observing educational rhetoric–reality gaps in practice will alter the social-cultural rules influencing those practices (see Section 3.14.3).

Figure 3.2 Typology of rules, social structure, social system and modalities of connection (Giddens, 1984, p.29; Turner, 2003a, Fig. 28.1, p.479).



However, the notion of "structures as resources as existing only as memory traces and as instantiated in action" (Giddens, 1984, p.377) has been incompletely theorised by Giddens, resulting in a certain "lack of analytical clarity" and criticism (Stones, 2005, p.18). Archer (1996), for example, referred to material expressions of structures in the form of written laws or protocols as evidence of the tangible existence of social structures. Giddens (1979) considered these documents to be merely written representations of possibilities, in terms of the consequences or outcomes of certain actions, rather than tangible social structures. He did, however, note that it is necessary to include "certain material elements of context and capability in the notion of structure as resources" (Stones, 2005, p.18).

Archer (1995, 1996) also noted that Giddens' idea that structures exist only as they are "instantiated in action" (Giddens, 1984, p.377) failed to address a temporality in the sequence of interaction between agency and structure, and ignored the fact that structures not only exist, but

are generally longer-lived than human actions. Although her concern focussed on the manner in which Giddens related structure and agency, rather than the idea that they are related, Stones (2001) suggested that this stemmed from a superficial and limited interpretation. While Giddens did not adequately explore temporal dimensions, he did not preclude their existence—relevant social structures definitely exist, particularly at the moment they are called upon by human actions. For example, a child's ability to learn to distinguish between the taste sensations of sweet and sour will depend on the availability of food stuffs with those properties (Stones, 2001).

The notion that social structures can persist over time was also supported by Cohen (1989) who stated that structures existed "as emergent properties of past practices and as the pre-existent conditions for subsequent actions" (cited in Stones, 2005, p.63). He used the term "position-practices" to describe sets of structures, or collections of behavioural routines, within specific contexts or institutions, such as those directing relationships between pupils, teachers and principals in a school. Such sets of structures exist prior to an individual entering a school, may be transformed or reproduced by that individual, and will prevail when that individual leaves (Thompson, 1989). However, Archer (1995) warned that the existence of position-practices does not guarantee that every individual entering a social environment will be able to perform as expected. In other words, the observed practices of teachers participating in this research were specific to one place and time. The same teachers may have practiced very differently in different places and/or at different times.

It is beyond the scope of this research to comprehensively debate or validate the degree to which structures exist as material resources or as knowledge. Hereafter, unless otherwise indicated, the term 'structure' refers to both material resources and knowledge, in order to most accurately represent the manner in which research participants perceived and described the influence and interrelationships of structures on their work practices.

The educational rhetoric–reality gaps I investigated reflected teacher practices that were undertaken by knowledgeable people who continuously and reflexively monitored their actions, and influenced by a complex interplay of human agency and structure. Understanding the interplay of agency and structure, particularly in terms of the role of unconscious knowledge (motivation) and non-conscious knowledge (contextual behavioural routines), was essential for answering the research questions regarding the nature of rhetoric–reality gaps and how to reduce them.

3.10 ONTOLOGICAL SECURITY AND ROUTINE: WHERE AGENCY AND STRUCTURE MEET

This research investigates the notion that individuals rationalise their actions by drawing upon their knowledgeability of social structures, and that they reflexively monitor their actions by considering both intended and unintended consequences. However, neither knowledgeability,

nor reflexive monitoring, explains the underlying reasons or motivation for action (Loyal & Barnes, 2001). The true nature of human motivation has evaded decades of psychoanalytical research, and falls well outside the realms of this research. However, the teacher practices I investigated were undoubtedly influenced by unconscious human motivation, referred to by Giddens as "ontological security" (Giddens, 1984, p.50). Stones (2005) noted that the term was coined by Laing (1960) to describe the "inner ability of a personality to deal with threats, anxiety, ambivalence, and so on, whether in situations of the familiar routines that Giddens emphasises or in times of rapid and turbulent change" (Stones, 2005, p.24). Ontological security was considered by Giddens to be an individual's unconscious safety system; the desire to avoid negative emotions such as anxiety or guilt. In other words, people act with some reference to feelings, and in accordance with beliefs, values and attitudes (Stones, 2005) (Section 3.12).

Giddens believed that ontological security is accomplished mostly through the establishment of well-practiced routines for social interaction—that is, the development of practical, non-conscious knowledge through which a significant portion of daily life is managed (Loyal, 2003). The following of well-established patterns of behaviour, or routinised rules, seems to diminish the importance of subjective factors in human agency, and contradicts the independent and unpredictable behaviour of 'free will' (Loyal & Barnes, 2001). More than any other aspect of agency, the prevalence of such well-established routines has posed the greatest challenge for explanation and led to arguments that structural constraints direct human action. These arguments however, are countered by those who point out that routines are developed through the interaction of both objective and subjective factors of human agency (Thrift, 1985; Turner, 2003a).

Routines contribute predictability to daily life and enable people to interact knowingly and confidently; that is, with ontological security (Arts, 2000; Turner, 2003a; Vaughan, 2001). The foundations of ontological security probably develop throughout childhood as an individual learns how to interact with a society's rules and resources (Kenway & Bullen, 2000). In turn, the character of the behavioural routines that are created depends upon the degree to which social norms are internalised throughout an individual's socialisation process, according to, amongst other things, the perceived degree of pleasure or guilt arising from specific behaviours (Loyal & Barnes, 2001). The development of social understanding and behavioural routines in this manner depends upon context, that is, the critical elements of time and space.

In order to illustrate the importance of context in social interaction, Giddens employed Heidegger's idea that "time and space represent expressions of the relations between things and events" such that "social interaction intermingles presence and absence" (cited in Loyal, 2003, p.94). This understanding replaces the idea of 'present' with that of 'presence', such that social interaction is not characterised only by rules and resources at work, but equally by the rules and

resources not being utilised. Presence, or absence, may be related to power asymmetries in any social context, indicating that routines also reflect less tangible elements such as social positioning (Loyal, 2003). Understanding human agency therefore requires exploring the interrelationship of rules and resources in different contexts, and the interaction of different contexts within a social system (Gregson, 1986; Thrift, 1985).

The development of regionalised routines has a dual effect on social life. Not only do individuals maintain their ontological security by engaging in specific routines, their actions facilitate the continued expectation for those routines (Giddens, 1984; Mouzelis, 2000; Turner, 2003a; Vaughan, 2001). This indicates that in addition to providing accessibility to ontological security, routines play an important role in institutionalising social structures. For example, the practices of both the teachers and students within the primary classrooms I visited reflected an institutionalised set of routines of an established social system. Any social system can be maintained for as long as individuals are willing to adhere to the routines that define and reproduce that system (Giddens, 1984; Mouzelis, 2000; Turner, 2003a; Vaughan, 2001). However, although established routines form strongly persistent aspects of social interaction, they are not fixed, and Giddens (1984) noted that any individual may consciously decide to discard or modify any routine. In other words, reflexive monitoring may facilitate the development of useful social routines, or facilitate deliberate action contrary to established routines. While rules and resources both enable and constrain human action, they do not determine human action (Yates, 1997).

This is highlighted by Gynnild (2002) who investigated the implementation of classroom structural changes (objective factors) designed to encourage engineering students' perceptions of the worth of deep learning. Despite significant changes in the observed classes, the students' perceptions did not change. Students who initially demonstrated interest in superficial learning continued to do so, while those initially interested in deeper learning maintained their interest. A significant conclusion from this study was that efforts to alter the structural components of a learning environment did not necessarily achieve changes in student perceptions (Gynnild, 2002). In other words, while rules and resources both enable and constrain human action, they do not determine human action. Changes to the structural elements of an environment will not necessarily result in changes to human action.

Similarly, the existence of well-established routines does not necessarily ensure access to ontological security. Cassidy and Tinning (2004) illustrated the difference between intended and received messages, and the importance of the relationship between conscious and non-conscious knowledge, as individuals seek to achieve ontological security through established routines. In a study, pre-service physical education (PE) students were introduced to many images of primary school PE teachers in order to challenge their pre-conceived ideas about PE. The responses and initial teaching practices of one student were followed for the duration of the

study. Both before and after viewing images of different types of physical education lessons, this student described PE teachers according to their clothing, equipment, and on-field sporting behaviour (giving directions). Despite the wide variety of images presented, this student relied upon her stereotypical views of PE teachers developed from her own experiences. She planned specific ways of being able to adhere to these stereotypical routines prior to beginning teaching.

However, the student was observed to change her planned actions in response to unexpected practices followed by her in-school mentor. For example, her mentor did not change out of sports clothing for undertaking classroom teaching. The student similarly did not change her clothing, although this created some anxiety as it was contrary to her initial ideas about what was appropriate behaviour. This demonstrated the power of an established routine to challenge ontological security, to alter individual action, and in turn, to ensure the continuance of an existing institutional practice (2004).

Cassidy and Tinning (2004) also noted that the student took advantage of specific established routines within her classes. She undertook methods of student control, such as using a whistle and yelling directions, which she herself had not enjoyed at school. In other words she analysed the reality of teaching PE and took on board the shared practices of PE teachers across time and space. This demonstrated that individuals may respond to structural factors by choosing to follow a specific routine, even if required to act against personal value priorities or previously established attitudes and beliefs, and irrespective of any disruption to ontological security (Giddens, 1991a).

The educational rhetoric–reality gaps that I observed required consideration of the influence of individual ontological security and well-established routines to teacher practices. Similarly, recommendations for changes to teacher practices in order to reduce rhetoric–reality gaps recognised the importance of establishing opportunities for teachers to disrupt old routines while maintaining ontological security.

3.11 PUTTING IT ALL TOGETHER: DUALITY OF STRUCTURE AND AGENCY

Social theorists have traditionally viewed agency and structure as dualistic phenomena, in that individuals are either accredited with absolute freedom to act in their preferred manner, or are constrained to only those actions made possible by structural factors (Mouzelis, 2000). This encouraged much sociological research to focus on determining which of the independent subjective–objective sets of factors had precedence for any specific interaction (Cassidy & Tinning, 2004).

Giddens acknowledged the importance of individual choice in directing human agency. However, in order to accommodate the "patterns and predictability in action" represented by behavioural routines in daily life, he assumed that there must also be some constraints on choice

due to factors which pressure individuals at the conscious or non-conscious level to choose certain actions (Loyal & Barnes, 2001, p.517). Giddens noted that structural properties may effectively place "limits upon the range of options open to an actor, or plurality of actors, in a given circumstance or type of circumstance" (Giddens, 1984, pp.176-177). Such constraints may take either of two forms: structural constraint, where action is not possible; and normative sanctions, where actions would incur punishment.

In general however, social practices arise from structure and agency phenomena that are not only dependent on each other, but are so interrelated that Giddens assumed they actually presupposed one another (Rose, 1998, June 4-6; Sawyer, 2002). Structure and agency form a duality in which they are "mutually implicated in and constituted by the same event—social practices" (Vaughan, 2001, p.186). The notion of structure and agency as a duality "relates to the fundamentally recursive character of social life and expresses the mutual dependence of structure and agency" (Giddens, 1979, p.69). As represented in Figure 3.2, "structural properties (signification, domination and legitimation) are constantly reproduced from social interaction (communication, power and sanctions) by means of the modalities (interpretative schemes, facilities and norms) drawn on by knowledgeable, reflexive actors" (Jones et al., 2000, p.161). However, this notion of the duality of structure and agency has not been universally accepted. Criticism of structuration has included the concern that the notion of the duality of structure and agency precludes the possibility that individual action might occur unilaterally in response to either subjective or objective factors (e.g. Archer, 1982, 1996; Sawyer, 2002), and that deliberately working to reduce the distance between these introduces "crippling distortions" to any interpretation of social interaction (Mouzelis, 2000). Loyal and Barnes (2001) argued that human action is best understood as a complex interplay of both chosen and unchosen factors. Irrespective of the relative importance attributed to each, no specific action can, in hindsight, be interpreted as a consequence of either choice or cause, as the action itself would be identical, and "there is only one past. Whether or not it could have been otherwise, it was not otherwise, and nothing empirical hangs on the might have been that was not" (p.520). They proposed that the propensity for sociologists to choose either an objective or subjective perspective is merely a matter of taste, and that a more critical concern might be "what is it about theorists that makes sense of their preferences for the one or the other" (p.520). Similarly, others have argued that continuing debate concerning the relationship between agency and structure is futile, and that in the absence of empirical evidence that humans either exercise complete autonomy, or are totally directed by social structures human action is more usefully understood as a range of behaviours from "extremely difficult to modify, through to those that may be modified by the most cursory intervention" (Loyal & Barnes, 2001, p.522).

Thus, teachers' classroom practices can be viewed as behavioural routines which develop from complex interactions between objective and subjective factors. Furthermore, irrespective of the degree to which subjective and objective factors influence their practices, as knowledgeable

humans, teachers employ their reflexive abilities to assess socio-cultural structures and possible implications of their actions to maintaining ontological security. In order to understand unconscious motivations for teacher practices and how these contribute to ontological security, it is essential to consider the human constructs of value, attitude and belief.

3.12 UNCONSCIOUS KNOWLEDGE: HUMAN VALUES, ATTITUDES AND BELIEFS

Reflexive monitoring is the process through which individuals determine how to act in ways that best achieve ontological security. This process requires interpretation of rules and resources, and is strongly influenced by values, attitudes and beliefs, or unconscious knowledge. An individual's unconscious knowledge will determine not only how they interpret rules and resources, but how they will employ their agency towards ontological security (Cassidy & Tinning, 2004). Understanding these complex interrelationships was necessary in order to investigate the nature of rhetoric–reality gaps that I identified, and to develop recommendations for successfully changing teacher practices in order to reduce them.

3.12.1 The nature of human values

The notion of human values is a theme central to much social science research, and yet the literature contains a long history of definitional inconsistency (Adler, 1956; Campbell, 1963; Rohan, 2000; Smith, 1969). This definitional problem reflects the difficulty in conceptualising personal constructs that are often acted upon unconsciously and essentially describe, in part, what it is to be human (Feather, 1992). Values reflect a person's perspective of their experience of their reality, referenced against a specific cultural, social and historical background (Rohan, 2000; Rokeach, 1973). Values are the critical components of character and personality, and enable individuals to interact uniquely to their social and physical environments (Shand, 1896, 1914).

Rohan (2000) believed that this definitional confusion arose from persistent nominalisation of the poorly understood process of valuing to the term 'value'. Humans continuously assess the relative worth (or goodness) of interactions with, and entities in, their surroundings (Festinger, 1954). This cognitive process builds human unconscious knowledge—value-frameworks, or schemas, which are derived from evaluations of previous interactions, and are then used for assessing new experiences (Bargh, Chaiken, Govender & Pratto, 1992; Feather, 1982, 1995). Schemas are trans-situational, and enable humans to predict the outcomes of future interactions and to develop analogies for assessing unusual or unfamiliar situations (Festinger, 1954). The reason humans value is evident in two value groups identified by Rokeach (1973): values that define goals that relate to personal and societal requirements (terminal), and goals for moral or competent behaviour (instrumental) (Feather, 1982). In other words, it is through values that individuals establish conditions for maintaining ontological security.

Raulo (2000) stated that "A person who does not know the values of his own society has no material for rational deliberation" (p.511). Values are the standards by which individuals compare and position themselves in regard to moral and social issues, and religious, political and environmental ideologies. Values give individuals the means to both evaluate and rationalise their beliefs, attitudes and actions (Rokeach, 1973). In other words, values are a form of unconscious knowledge and are central to the process of reflexive monitoring. The most obvious outward expression of values occurs when individuals consciously provide defensive justifications, or deliberately reframe situations, in order to disguise unacceptable differences between personal and perceived social values (Kristiansen & Hotte, 1996). It was important to consider the influence of teachers' values in the provision of descriptions of classroom practices that did not match the observed reality.

A great deal of research has been devoted to identifying a universal set of human values (e.g. Allport, Vernon & Lindzey, 1960; Kohnstamm & Mervielde, 1998; Morris, 1956; Rokeach, 1973). In several cross-cultural studies, Schwartz and Bilsky (1987a; 1990) identified many values, all of which may be grouped according to three universal human survival requirements that both individuals and groups must actively address: biological needs; social interactional demands for interpersonal coordination; and social institutional demands for group welfare and survival (Schwartz, 1992, 1994, 1996). Although there is considerable debate concerning the relative influence of these, Schwartz and Bilsky (1987b) proposed that they formed the underlying goals or concerns for all humans. Thus, identifying the values associated with interpersonal and social demands could provide valuable insights into teachers' practices, and therefore the development of rhetoric–reality gaps.

However, behavioural individuality is not simply a reflection of specific values, but of their relative importance or hierarchy, referred to as value priority (Kohnstamm & Mervielde, 1998). In other words, when choosing how to respond to a situation, an individual will prioritise possible actions according to their value priorities. This process is not well understood, but often occurs unconsciously and involves comparison of the relative personal benefit of the probable consequences of actions (Feather, 1982, 1996). Schwartz and Bilsky (1987a) suggested that this prioritising process incorporates an assessment of potential intended and unintended outcomes and consequences in relation to their motivational goals, or preferences for ontological security. How an individual perceives the positive or negative aspects of an outcome will, in turn, depend on their values (Feather, 1995). Thus, in this research, teachers' perceptions of the rules and resources within their school environments may be strongly influenced by their values.

Similarly, teachers' beliefs about their ability to use available rules and resources, or ability to wield power to influence others, will influence their practices. Belief about what is possible is a strong moderating factor of behaviour (Bandura, 1988). For example, a teacher may continue to

instruct in an authoritative fashion, knowing that this will not encourage critical thinking in students, due to the belief that the action of one teacher cannot make enough of a difference to be worthwhile. Although an individual's values and interpretation of potential positive and/or negative consequences are difficult to separate, these were considered in order to understand the teachers' practices that defined the rhetoric–reality gaps that I identified (Feather, 1992).

Continuity in society, culture and personality suggest that human values are relatively stable, and yet the fact that social change does occur indicates that they are not permanently fixed (Rokeach, 1973). As early as 1945 it was understood that value priorities are rarely altered by information alone (Lewin & Grabbe, 1945). Changes are most likely to occur as a result of firsthand experiences that induce awareness by challenging an individual's ideas of what is required for ontological security. In addition, it is likely that these changes will relate specifically to the context of the experience, and probably only when that experience has been sanctioned by the individual (Rokeach, 1973). Not only does this have significant implications for the goals of ESD, as identified in Section 2.4, but also for recommendations to reduce rhetoric–reality gaps by transforming teachers' practices. If teachers are to be asked to alter their practices, they must have opportunities to experience alternatives in order to identify inconsistencies and conflicts, and to find ways in which to satisfy their needs for ontological security.

Values however, are not the sole form of unconscious knowledge that influences behaviour. Values are intimately related to attitudes, and these may have contributed to the rhetoric–reality gaps that I identified.

3.12.2 The nature of attitude and the rhetoric–reality gap

Much educational research has focussed on attitude, particularly in relation to teacher and student attitudes towards various subjects (e.g. Levitt, 2001; Quek et al., 2007). Rokeach (1973) considered this focus to reflect the development of survey methods believed to easily elicit attitudes from participants, a pervasive perception that attitudes strongly reflected future behaviour, and a lack of clarity regarding the difference between values and attitudes (Rokeach, 1973). The latter reflects the propensity for the inconsistent use of ill-defined terminology in attitude studies. The term attitude has most often been used to refer to an individual's value judgements of both abstract situations (e.g. "I value honesty") and tangible entities (e.g. "I value this book") (Rohan, 2000). The former is a judgement about a value, a type sometimes identified specifically as 'value-expressive attitudes', but which are really more simply, values (Maio & Olson, 2000). The second is a judgement about an item, or action that in itself is not a value. This type of judgement is an attitude (Rohan, 2000). In other words, attitudes summarise past experiences by organising an individual's beliefs about specific situations or objects (Ajzen, 1996; Rokeach, 1973). As attitudes are highly contextual they are more likely to influence certain specific behaviours than trans-situational value-based behaviours. Attitudes

obviously reflect an individual's value priorities, but they may in turn bias the values an individual considers relevant to an issue or situation, and influence an individual's open-mindedness in reasoning about an issue. Individuals often employ values to justify specific attitudes (Kristiansen & Zanna, 1994).

Results from studies of the degree to which attitudes affect behaviour are highly inconsistent and reflect the complicated nature of attitude formation and stability (Kraus, 1995). The relationship between attitudes and future behaviour is highly complex and influenced by many variables which make research difficult (Kraus, 1995). Ajzen and Fishbein (1977) suggested that poorly designed surveys, in which there is only a weak connection between the attitudes and behaviours under investigation, have led to conclusions that attitude-behaviour correspondence is an invalid relationship. They propose that as attitudes are highly contextual, four important elements must be considered when investigating attitude–behaviour correlation: the action, the object or target, the specific context, and the time it is to occur. If any one of these components does not reflect reality, or the participant's perception of reality, or if any one of these changes, there will be poor attitude–behaviour correspondence. Thus, in any research, relating attitude to behaviour depends on the reality of the situation being investigated. This means that educational rhetoric–reality gaps must be investigated as they are created, by teachers' practices, within authentic contexts.

While it is generally understood that attitudes are partly responsive to current contextual cues (Wood, 1982), evidence suggests that both attitude and subsequent related behaviour have a common dependence on a person's prior experiences and behavioural routines. Fazio and Zanna (1981) found that attitudes created as a result of direct experience are significantly greater predictors of future behaviour than those based on indirect information. The best feedback on behaviour is from that behaviour itself. Attitudes based on prior behaviour are probably better defined and more easily evoked by future, similar situations, making them stronger (Fazio & Zanna, 1981; Kraus, 1995). The strength of a person's attitude associated with a specific object or action may vary on a continuum from strong to weak to non-existent. Attitude strength has been measured as time taken for individuals to react to questions concerning specific objects or situations. Well-learned, strong attitudes from direct experience provide the fastest responses as they are more readily accessible from memory (Fazio, Sanbonmatsu, Powell & Kardes, 1986). The strength of a person's attitude will determine how resistant it is to change, how persistently it influences behaviour, and therefore the degree of attitude stability—probably an equally important component of attitude-behaviour predictability (Doll & Ajzen, 1992; Wood, 1982).

The relationship between attitude and routine suggest that altering well-established teacher practices to reduce rhetoric–reality gaps, requires identifying ways in which to assist teachers to identify and alter their attitudes. The strongest attitudes develop from meaningful and

contextually relevant experiences. Such attitudes reflect strong object–evaluation associations which may be easily accessed from memory, and so are more likely to initiate spontaneous behaviours (Fazio et al., 1986). It is therefore essential to provide teachers with opportunities to experience new practices in ways which assist in the development of new strong attitudes which manifest as new revised behavioural routines. Attitudes can be viewed as a set of beliefs that enable us to form intentions to respond (or not) to objects or situations in a particular way. Beliefs are the informational basis for our attitudes (Fishbein & Ajzen, 1975). Positive attitudes develop from positive consequences and vice versa (Doll & Ajzen, 1992). Attitudes act as guides rather than motivators for potential behaviour, and thus, they may predict a type of behaviour, but not that it will occur. This is an example of a rhetoric–reality gap. The identification of gaps between teacher attitudes and teacher practices, in terms of the production of rhetoric–reality gaps, provided insights into the types of interventions required to reduce these gaps.

The ability to change an attitude however, depends on first influencing the salient beliefs that contribute to the formation of that attitude. More significantly, in order to understand an individual's attitudes, it is crucial to first identify the underlying beliefs.

3.12.3 The nature of belief

A belief is a subjective interpretation of a probable link between any two aspects of life, including objects, actions, situations, values, or concepts (Fishbein & Ajzen, 1975). Rokeach (1968; 1973) described three types of beliefs: descriptive or existential beliefs which incorporate perception of observations and experiences; evaluative beliefs, which incorporate judgements of good or bad, and ideas of morality; and prescriptive or proscriptive beliefs which strongly influence human behaviour by enabling the consequences of actions to be judged.

Despite the critical relationship between these and human attitudes, there has been little research concerning the development of these belief types. However, there is a general understanding that they form on a continuum from direct observation, to inferences based on previous observation or previous inferences. The way in which a particular belief is formed will determine its strength or certainty. Fishbein and Ajzen (1975) categorised beliefs according to the manner in which they were formed: descriptive, inferential and informational.

Descriptive beliefs form as a result of evidence gained from direct observation or experience, and are generally the beliefs of greatest certainty. As an individual's perceptions and understanding of life are influenced by their previous experiences, descriptive beliefs will, in part, reflect a continuing history of their developing understanding of the world. This suggests, for example, that a teacher may believe that a transmissive pedagogy provides the best student learning as this was their own experience as a successful student.

Inferential beliefs are formed from indirect or non-observable evidence, and are often the basis for generalisation. Many are inferred from prior descriptive beliefs, either by simply association

(such as a wilted plant needs water) or as a logical progression (an emu is taller than a dingo which is taller than an echidna, so emus are taller than echidnas). Some inferential beliefs are more interpretative in nature, such as the interpretation that a student with good factual knowledge was taught by a knowledgeable teacher.

Informational beliefs are formed from reports of interpretations of situations or objects by others. The degree of belief certainty will reflect the degree to which the given interpretations are accepted. If fully accepted, such reports may be treated as direct observations leading to formation of strong beliefs (e.g. "I observed in a government education report that…") (Fishbein & Ajzen, 1975).

The development of belief is a complex, dynamic process which begins at a very young age. Belief formation is not fully understood, and is the basis for much sociological research (e.g. Ash, Torrance, Lee & Olson, 1993; Flavell, 2000; Halstead & Taylor, 2000; Pillow & Henrichon, 1996; Vinden, 2002). Festinger (1954) suggested that throughout life, individuals continuously test and up-date their beliefs. This is the basis for belief change. When an individual's belief is challenged to the point that they develop feelings of doubt about its validity, they are open to information that may clarify or alter their position. When direct observation or experience is not possible, this process involves comparison with information and feedback from others. Information from others can significantly influence belief. Consider the placebo effect (traditionally referred to in medical experiments when patients recover because they believe they are consuming medicine when they are only receiving sugar pills or placebos) and the pygmalion effect (observed as poor performance due to convincing an able person that they are unable) (O'Connor & Seymour, 1995).

In light of this, teachers' practices strongly reflect, in part, their beliefs. In order to understand the nature of rhetoric–reality gaps that I identified, it was essential to identify the beliefs that founded the practices that defined these gaps, including beliefs about self, beliefs about the socio-cultural rules and resources of the school setting, and beliefs about the beliefs of others.

Beliefs form the foundation of human attitudes and values, and as such, are fundamental to the way in which human unconscious knowledge influences perception of socio-cultural structures, reflexive monitoring, and ultimately, action. The complex interrelationship between all aspects of human knowledge and social structural elements is the basis for Giddens' theory of structuration—the ontological framework within which this research was situated.

3.13 STRUCTURATION AS AN ONTOLOGICAL FRAMEWORK

Giddens' notion of structuration provides a theoretical perspective for understanding human phenomena by focusing on the process by which social structures are produced and reproduced over time and across space while being transformed through human interaction. This process

positions structure and agency as a duality (Rose, 1998, June 4-6; Yates, 1997) (Section 3.11), and incorporates the notion of praxis.

Praxis has been described as a "somewhat ambiguous term", but is used here to represent "the use of thought to organise action to change conditions and the use of experiences in action to re-examine thought" (Turner, 2003b, p.234). This notion of praxis has been a fundamental component of many traditional approaches to social research. Sztompka (1994) for example, viewed the relationship between human agency and praxis as fundamental to social practice theories, stating that "agency and praxis are two sides of the incessant social functioning; agency actualizes in praxis, and praxis reshapes agency, which actualizes itself in changed praxis" (p.56). Similarly, Bourdieu's (1977) ideas regarding 'habitus' highlighted the interaction between human practices and social structures as a practice theory he described as "a generative process that produces practices and representations that are conditioned by the structuring structures from which they emerge. These practices and their outcomes—whether intended or unintended—then reproduce or reconfigure the habitus" (p.78).

These ideas highlight obvious and important similarities between established practice theory and structuration, particularly in relation to the practice of human agency, and the influence of 'habitus' or social structures. However, unlike structuration, practice theory does not provide a clear recursive relationship between structure and agency. While human agency is viewed in relation to being shaped by social structures (an excellent framework for understanding power and inequality relations in any social system) the possibility that social structures may shape human action in ways that directly change those fundamental structures is not clearly envisaged (Ahearn, 2001). Rather than focussing on human agency and social structure as discrete factors, structuration concentrates on interactions between them. This indicates that understanding social phenomena requires an holistic exploration of relationships between all social components rather than studying single aspects of society in isolation (Gregson, 1987).

Fundamental to structuration is the centrality of human actions to any social system. Human actions, as social practices: form the key to understanding social systems; are not random, but routinised and regionalised; are recursive activities as knowledgeable individuals reflect and make choices about creating and using rules and resources; and occur within a framework of rules and resources, or structural properties, which form the institutionalized practices in society (Clark, 1990; Giddens, 1979; Jones et al., 2000). In recognition of these complex and dynamically interrelated aspects of social life, structuration takes a holistic view of social interaction, referred to as "structured-praxis" (Stones, 2005, p.19). Structured-praxis encompasses not only the social conditions that shape and facilitate human action, but also the manner in which actions are initiated, undertaken and interpreted—all aspects of human interaction in the production of social life (Cohen, 1989). Structured-praxis may be considered a double hermeneutic characterised by the recursive involvement of institutions and individuals,

as indicated by Giddens' notion of the duality of structure and agency, whereby the social structures created by human interaction are also influenced by social structures. As individuals use various modalities in order to draw upon structures of domination, legitimation and signification during social interactions, they are simultaneously contributing to the reproduction or continuance of these structures (Stones, 2005) (Figure 3.2).

As an ontological framework, structuration recognises that individuals are both social agents and social theorists with the ability to interpret and incorporate their social experience with personal knowledge and belief when deciding how to act (Giddens, 1984). This is best highlighted by the role of the non-conscious human knowledgeability, referred to as conjuncturally-specific knowledge, which incorporates internal structures that lie beneath that which individuals observe and present to the outside world (see Section 3.4). Conjuncturally-specific knowledge incorporates three types of understanding: "knowledge of the interpretative schemes, power capacities, and normative expectations and principles of the agents within context" (Stones, 2005, p.90):

- Conjunctural knowledge of how particular positioned agents within context would interpret the actions and utterances of others (interpretative schemes)
- Conjunctural knowledge of how agents within context see their own conjuncturally-specific power capacities (power)
- Conjunctural knowledge of how the agents within context would be likely to decide how to behave, gleaned from their perception of the fit or tension between: i) those agents' ideal normative beliefs about how they should act and ii) how they may be pressured to act in the immediate conjuncture (Stones, 2005, pp.91-92).

It is important to note that these require an agent to interpret how others within a specific social context draw upon their general dispositional structures and how these interact with their interpretation of the broader conjuncturally-specific structures. In other words, the actions of one individual are influenced by the "conjuncturally-specific knowledge of networked others" who may not be directly involved in the same interactions (Stones, 2005, p.93).

Figure 3.3 outlines the process of structured-praxis through the "dimensions of the duality of structure" (Giddens, 1984, p.29). The interrelationships between the dimensions shown were summarised by Jones et al. (2000):

> (a) systems of *signification* (structure) allow agents to *communicate* (interaction) with each other through the application of *interpretative schemes* (modality); (b) systems of *domination* (structure) enable actors to affect each others conduct via the exercise of *power* (interaction) and the application of *facilities* such as the rules and resources (modality),

> although…the dialectic of control suggests that actors with apparently little 'power' can affect change; (c) systems of *legitimation* (structure) permit the *sanctioning* (interaction) of interaction through the application of *norms* (modality) (p.163, original italics).

Phipps (2001) added that:

> Structuration processes characterise a range of social behaviours where individuals or groups of people have thought about their own and others' actions and judged them as rational; where they have learned and are using the formal and informal rules and resources for interactions, and are reaffirming them for others; and where they have experienced consequences for their actions, but are contributing all the time to a relatively stable, system-like pattern of interactions in time and space (p.189).

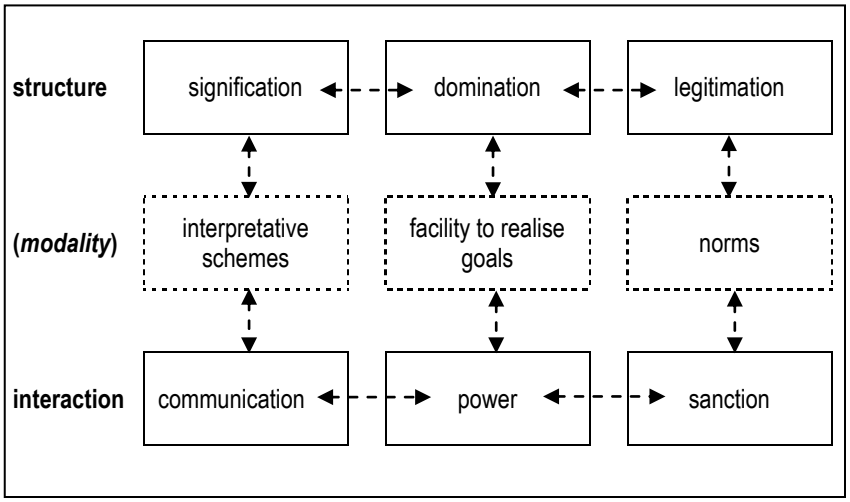


Figure 3.3 Dimensions of the duality of structure (modified from Giddens, 1984, p.29).

Although Figure 3.3 portrays the same aspects of social life as Figure 3.2, attention has been given to the specific interplay between signification, domination and legitimation. Interactions between these reflect the full nature of the duality of structure and the notion that individuals act reflexively. Not only do rules influence a person's actions, but rules are shaped by that person's interpretation of rules and their own actions, plus their reflection of interpretations and actions of others.

An example of the duality of structure and agency in social interaction is provided by an investigation into the decline in female students and workers in information technology (IT). A structuration framework was employed by von Hellens et al. (2004) to analyse, through interviews, how women reinforced, transformed or were constrained by the rules and resources of the IT industry. A most significant finding was that the discourses of IT professional women

were characterised by dualisms not always consistent with their lived experience (von Hellens et al., 2004). Interviews indicated that many of these dualisms related to differences in the work ethic of male versus female IT workers, and of the skills and character required for the job. Interviewees considered that, compared with male workers, female workers were more likely to be concerned with details and were better communicators, but had lesser technical skills. They also considered technological knowledge to be distinct from business knowledge. Of particular interest, interviewees indicated that their presence in the IT industry demonstrated they had overcome significant barriers, especially in relation to challenging unfavourable gender perceptions, and that they were therefore different from other females. In other words, female workers talked about their IT work in ways that reinforced the very gender differences they believed they had succeeded in overcoming (von Hellens et al., 2004). This indicated that the rhetoric–reality gaps that I identified could reflect teacher practices which not only created those gaps, but in so doing, created structural features that inhibited teachers' abilities to change those practices.

The use of structuration as an ontological framework for this research would enable the social practices that led to the development of the educational rhetoric–reality gaps to be investigated in terms of not only the role of specific aspects of human agency and structure, but also the complex interrelationships between these. This holistic approach required determining how to incorporate such a framework within the research practice.

3.14 STRUCTURATION AS AN ONTOLOGICAL FRAMEWORK IN PRACTICE

Structuration provides a theoretical, ontological framework for taking a generic perspective on social life (Cohen, 1989, p.1), but the validity of its use as a theoretical basis for sociological research is the subject of continuing and vigorous debate. Of particular concern is the limited evidence that structuration provides valid, practical and ontological applicability to real social contexts (Dear & Moos, 1994; Phipps, 2001; Thrift, 1985). Structuration is essentially a social science meta-theory[7] in that it does not constrain the user to a specific research focus such as, for example, feminist or Marxist theories, nor does it attempt to yield positivist absolutes in the terms of cause and effect, or true and false (Cohen, 1989; Yates, 1997). The lack of a specific focus has led some (e.g. Murgatroyd, 1989) to criticise structuration as lacking the critical elements of an authentic social theory. Turner (1990) agreed, noting that the lack of demonstrated normative components in the theory essentially renders structuration nothing more than a perspective of what should be, rather than what is. Thus, while structuration provides an ontological framework, it does not prescribe the knowledge to be sought, or methodology to be followed, in order to employ this in practical research, leaving researchers to ask "how exactly do we use the insights of structuration theory?" (Gregson, 1987, p.90). Rose

[7] Meta-theory is a broad term used here to refer to one theory which encompasses others.

(1998, June 4-6) added that theories are only as beneficial as their ability to guide and improve practice. For many researchers, structuration does not meet this criterion, and this has led to the common use of the theory merely as a 'categorisation system' for analytical comparisons (Turner, 1990).

Giddens reminded critics who wanted epistemological and methodological directions that structuration is not intended to be a method of research or a methodology, and that "the concepts of structuration theory, as with any competing theoretical perspective, should for many research purposes be regarded as sensitizing devises, nothing more" (Giddens, 1984, p.327). The sensitizing devises of structuration provide a mechanism for making sense of the interrelated processes that constitute social life (Giddens, 1984; Turner, 2003a)—together these form an ontology of social life, or an "ontology of potentials":

> The structurationist ontology is addressed exclusively to the constitutive potentials of social life: the generic human capacities and fundamental conditions through which the course and outcomes of social processes and events are generated and shaped in the manifold ways in which this can occur (Cohen, 1989, p.17).

This comment reflected Giddens' idea that structures and patterns of social life exist only at the time and location that processes of human interaction occur. The importance of process prompted Sawyer (2002) to describe structuration as a "process ontology of the social world" (p.28). Hutchins (1995) suggested that such a process ontology should be considered a socioculturalism, as culture is not formed by the collection of physical or non-physical entities, but developed from a system of processes that define the "fundamental nature of reality" (cited in Sawyer, 2002, p.291).

Irrespective of an apparent lack of detailed information regarding how to use structuration, since its inception, its process ontology framework has been effectively employed to provide new ways of interpreting ideas from traditional fields of study. Fien (1993), for example, used structuration principles to assess the effectiveness of traditional school curriculum, leading to his "social action theory for environmental education". Many researchers have used structuration to integrate qualitative and quantitative data from archival and secondary sources in order to investigate and analyse historical social phenomena. Taylor (2003), for example, employed structuration principles to interpret artefacts recovered from industrial archaeological sites in northern Queensland. Unlike traditional archaeological approaches, structuration provided insights into facets of agency within a specific historical landscape by acknowledging that structural artefacts shaped the society that simultaneously created them. Others have used a structuration ontological framework to understand the role of both agency and structure in the development of current social issues, including: power relationships within business organisations (Yates, 1997); political relationships (Arts, 2000); information systems

technology (Jones & Karsten, 2003); the interrelated nature of subjective and objective aspects of criminology (Vaughan, 2001); workplace bullying as an example of specific human behaviour within a discrete context (Boucaut, 2001); and the analysis of social inequalities related to geographical factors (Wilson & O'Huff, 1994).

Despite the range of research problems to which the principles of structuration have been applied, a standard or preferred research approach has not been established. Structuration provides a mechanism for attaining diverse perspectives through exploration beyond a single event or action in order to incorporate the nature and influence of both ongoing human practices and structural mechanisms (Yates, 1997). In light of this, research practices must embrace the unique aspects of structuration (Stones, 2005), particularly: (in)separability of structure and agency and resulting issues of temporality (Archer, 1996); context; and the nature of social change (Thrift, 1985). The nature of these unique features and implications for employing a structuration ontological framework in this research are discussed below.

3.14.1 (In)separability of structure and agency

Social science researchers have long acknowledged the importance of both agency and structure in defining social life. Traditional research methodologies considered these to be mutually involved, but have tended to analyse them as distinct and separate influences (Archer, 1996). Archer (1995) criticised the duality of structuration as being unable to inform social analysis as "one cannot tell where structures begin and agents end." She argued the need for a dualism where the "material and cultural conditions in which action takes place" are separated from the action itself (cited in Stones, 2005, p.52). She indicated that such a dualistic approach was essential for exploring and explaining the relationship between structure and agency. Archer's concerns are perhaps most evident, and indeed most significant to this study, when considering well-established routines, such as those which influence the relationship between teachers and students. In these situations the boundary between an individual's actions, internal structures and the real or perceived taken-for-granted forms of knowledge drawn upon by an individual are most blurred. It is not even clear that individuals are able to identify these boundaries, let alone a researcher (Stones, 2005).

Stones (2005) provided the example of an individual drawing on structures of domination—resources of power or transformative capacity—within a particular context. A teacher within a classroom for example, has a certain sense of the power at her disposal, and the power available to others (e.g. pupils). These 'senses' are internal structures—virtual senses of power relations, or knowledge, drawn upon by the teacher in order to perform any action. Structuration indicates that such internal knowledge forms structures that are not only drawn upon to perform an action, but are reflected in the manner in which the action is "instanciated" (Giddens, 1984, p.377). It is not difficult to imagine that a teacher familiar with her working environment

would, over time, develop a manner of acting, or a series of routines, which reflected her internal knowledge structures and which maintained the power relations of the classroom.

Mouzelis (1991) noted that this is just one end of a continuum of the relationship between internal structures and action. He suggested that individuals are often able to describe the internal and external factors behind a specific action, but that by definition, this reflexivity required a degree of separation of subject and object (Mouzelis, 2000). Similarly, any duality becomes a dualism when an individual consciously and deliberately acts to distance themselves from the rules and resources of a situation, as required for subject–object investigative observation required within much social research. Mouzelis (2000) suggested that the relationship between any individual and the rules and resources of a context is variable, and therefore it is not possible to offer a universal statement concerning subject–object duality or dualism.

Irrespective of these arguments, simultaneously comprehending all aspects of a society is problematic (Gregson, 1987). Maintaining a focus on relationships without separately characterising the interacting components and how these may change through time and across space is difficult (Rose, 1998, June 4-6; Sawyer, 2002). Stones (2001) argued that being complexly interrelated does not prohibit agency and structure from being described and understood separately. In support of this, Cassidy and Tinning (2004) suggested adopting 'methodological bracketing', an approach whereby researchers momentarily concentrate on one side of the duality in order to identify and analyse aspects of either agency or structure.

Other critics of structuration however preferred social research frameworks that embraced analytical dualism, whereby human agency and social structures were analysed separately in order to determine their relative interplay (Willmott, 1999). Archer (1982) for example, presented the theory of morphogenesis as a research framework that supports analytical dualism. Like structuration, morphogenesis aims to understand the nature of individuals and their social environments, that is, both the subjective and objective factors within a social system, and acknowledges a relationship between these. Developed from ideas in general systems theory (Walter, 1967), morphogenesis explores the way in which the nature of a system (a socio-cultural system) might be modified. The theoretical focus of morphogenesis is the understanding that "complex interchanges…produce change in a system's given form, structure or state" such that socio-cultural systems are essentially endless cycles of "structural conditioning/social interaction/structural elaboration" (Archer, 1982, p.458). Analytical dualism frameworks, such as morphogenesis, however, deviate significantly from structuration in their outcomes to establish the nature of causal interactions between these factors (Sawyer, 2002) as opposed to revealing the nature of interrelationships or processes. The relevance of the interrelationships between factors of agency and structure to the research questions depended on the context in which they were revealed.

3.14.2 Context

An important aspect of structuration is the notion that social interaction is strongly dependant on context, both in time and across space. Thrift (1985) observed that despite the prominence of context, structuration itself had not been placed within a specific time or place, and that the lack of a well-developed epistemological direction presented researchers with the problem of how to move from the "level of a generalized abstract ontology—applicable to contexts of social practices at all times and places—to a particular practice situated in a particular time and place"(Stones, 2005, p.35). It is important to note that ontology-in-situ may be quite removed from ontology-in-general, and therefore it is important to identify an appropriate context for any research employing structuration as an ontological framework (Giddens, 1984).

Parker (2000) argued that a structuration ontological framework is only useful for investigating the types of problems which incorporate identifiable processes able to "produce durable structures, regular patterns of interaction and development tendencies with relatively high predictability on the one hand, and volatile, unstable, randomized, quick-changing unpredictability on the other" (Parker, 2000, p.107; Stones, 2005). In other words, the use of structuration as an ontological framework is best reserved for contexts in which the duality of structure and agency present a wide spectrum of possibilities. Despite this, Parker (2000) suggested that no single study can adequately cover every aspect of the duality of structure and agency within even the simplest context, and that therefore researchers must outline a specific investigation focus. This requires identifying both the "broader institutionalised and system-structural frame" of the research problem, and the "action horizon, as identified by the agent and/or the researcher" (Stones, 2005, p.83). For example, Thompson (1989) noted that some structures, particularly rules, take priority in different situations, and are therefore "more important than others" for resolving different research problems (Stones, 2005, p.47). This is most evident in social situations characterized by a predictable set of structures and structure priorities, or "structural identity" (Thompson, 1989). In this research for example, teacher participants worked in different schools. Each school had a distinctive set of structural characteristics, but also encompassed structures in common with all educational institutions. Thompson (1989) suggested that the latter were not those drawn upon in the daily activities of the teachers and pupils but were of a "different order", existing as "a series of elements and their interrelations which together *limit* the kinds of rules which are possible and which thereby *delimit* the scope for institutional variation" (Stones, 2005, pp.65-66, original italics). Walsham (1998) however disagreed, stating that although the structural features of an institution may be well established, they are maintained through the reflexive monitoring that accompanies the daily practices that define that institution, and that therefore any research must acknowledge the multilevel perspectives and influences of society, institutions and individuals.

In this research, institutions (e.g. schools) provided the social environment in which individuals (e.g. curriculum advisors, principals, teachers and students) interacted in ways that led to the

development of educational rhetoric–reality gaps. These interactions represented "sets of structures or collections of behavioural routines" termed "position-practices" (Cohen, 1989). In this research, the position-practices of teachers attempting to implement SSP in their classrooms were identified as the most authentic context through which the nature of educational rhetoric–reality gaps could be investigated. In order to focus on the effects of these specific position-practices, the "shared broader framework" of the school institutional environments in which "rules and resources exist and are drawn upon" were taken as already established (Stones, 2005, p.48). Figure 3.4 presents structuration as an ontological-in-situ framework, and indicates the role of ontological elements in the position-practices of teachers in the institutional context in which educational rhetoric–reality gaps I observed manifested, and from which answers to the research questions were sought.

3.14.3 Change

The notion of change was integral to answering the research questions established in Chapter 1. The educational rhetoric–reality gaps that I investigated not only developed in response to directions for educational change, but reflected the practices of teachers, who as knowledgeable and reflexive agents, constantly assessed and altered their social interactions, including their teaching practices. Recommendations for ways in which to reduce such rhetoric–reality gaps therefore necessarily incorporated the need for teacher practices to change.

The way in which structuration incorporates the notion of change has been a focus for debate. The emphasis on routine in directing human agency has led to concerns that structuration is essentially a model for the process of social reproduction (Thrift, 1985). The importance of routines in social life however, does not preclude social change. Even in the presence of well-established routines, individuals maintain the ability to consciously and unconsciously, intentionally and unintentionally, act in ways that either sustain or modify routines (Yates, 1997). This indicates that the modification of behavioural routines requires a change in intention and/or motivation, and possible modification to long-held value priorities, attitudes or beliefs. Many social theorists have indicated that such changes most likely occur in response to: sudden and/or unforseen events particularly death, disaster, accident or conflict; the development of new social insights or goals; and human creativity (Arts, 2000; Taylor, 2003; Thrift, 1985). Social change therefore results from agents modifying their understanding of, or response to, previously established legitimation, signification and domination structures (Arts, 2000; Munir, 2005). Irrespective of the nature of any impetus for change, modification of an individual's routine does not predict widespread social or institutional change (Yates, 1997). Giddens (1984) used the notion of episodic change to understand large-scale social change in relation to time and across space. He indicated that as every social system is composed of "recurrent social practices" (p.66) in the form of "regularized relations of interdependence between individuals or groups" (pp.65-66) every action will influence and change other aspects of a system in known and unknown, intended and unintended ways. Even the most insignificant

change in turn influences other actions which create change and so on (Giddens, 1984). This indicates that my presence in classrooms during this research will undoubtedly influence and therefore change the actions of teachers, and in turn, those changes will potentially influence the future actions of those teachers (see Section 3.9). However, Munir (2005) referred to recent changes in the photographic industry to demonstrate that social change is more complex than can be explained episodically, as different structures change at different times and within different places, such that "events in themselves are not capable of destabilising established practices" (p.107). In other words, human reflexive monitoring continues throughout any change process, such that "actors produce sense-making schemes by either invoking existing institutional practices or by questioning them" (p.108). This addressed Thrift's (1985) concern that structuration apparently provides little account of short-lived changes that play a significant role in any social system, in that the intended and unintended outcomes of any action or routine must satisfy a reflective appraisal prior to being repeated. Thus, if an individual's behaviour is to change, the aspects of unconscious knowledge which most strongly influence that behaviour must also change. This requires specific and authentic experiences which challenge prior understandings and established feelings of ontological security.

Some researchers have chosen to employ structuration specifically for its potential to facilitate an understanding of change processes. Structuration presents a unique perspective that as social life is constantly open to change by knowledgeable individuals, it is dynamic and not directed by universal laws. Jones et al. (2000) for example, used structuration as a framework for exploring the complex relationship of agency and structure in relation to innovation within technology companies. Their work differed from traditional studies in this field as they questioned the reasons for the appearance of new technologies, particularly in relation to what they described as "conditions under which technical change reinforces or modifies structure". This work was particularly instructive for this research, as it explored a process through which "practices are created, developed or reinvented", and required a methodological approach with the ability to accommodate temporal dimensions (pp.161-162). The educational rhetoric–reality gaps that I investigated developed in response to change, and were therefore related to how new ideas and new practices worked to 'reinforce or modify' pre-existing structures.

Structuration as an ontological framework provides a excellent tool for analysing the structural and cultural interrelationships within a specific social setting (Turner, 2003a, p.488). Although Giddens' work has not typically been employed within educational research (Gynnild, 2002), structuration effectively frames educational issues by highlighting the complex and dynamic interrelationships between the immediate and the broader structural and cultural influences at work within an educational environment (Rose, 1998, June 4-6). In light of this, structuration was an ideal ontological framework through which to answer the research questions regarding the nature of educational rhetoric–reality gaps, and to search for ways in which they may be reduced.

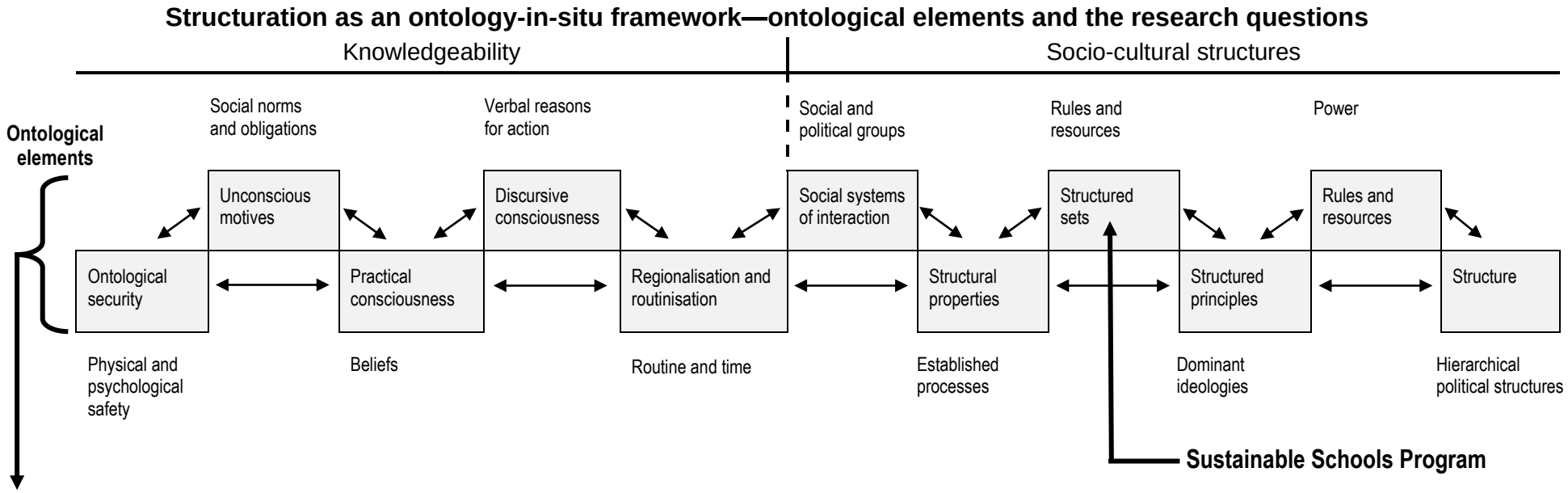


Figure 3.4 Structuration as an ontology-in-situ framework (adapted from Boucaut, 2001, p.66; Giddens, 1984; Turner, 2003a, p.488).

3.15 SUMMARY

This chapter reviewed Giddens' theory of structuration which acknowledges a duality between agency and structure in the way that humans interact and societies are constituted. Structuration provided an ontological framework for this research: a theoretical perspective of the critical ontological elements and interrelationships related to teacher practices and the development of rhetoric–reality gaps in the educational environments in which ESD is implemented. However, in order to address the research questions and develop an understanding of the nature of rhetoric–reality gaps, I needed more than a theoretical perspective. I required a way in which to practicably employ structuration. In the absence of recommendations or conventions regarding how to, for example, uncover the interrelationship of human knowledgeability with the socio-cultural structures that influence the teacher practices from which they are defined and to which they contribute, I needed to find ways in which to effectively explore the duality of structure and agency in primary classrooms. My research design is presented in Chapter 4.

4 RESEARCH DESIGN

4.1 INTRODUCTION

In this chapter I outline the research process that I used to address the research questions presented in Chapter 1. The research process emerged from the need to identify the ways in which complexly interrelated human and structural elements of a school environment not only influenced teachers' classroom practices, but were also shaped by those practices, and how those relationships contributed to the development of educational rhetoric–reality gaps. I explain the way in which I embraced this ontological reality through an interpretive research approach that supported a constructionist epistemology. I provide a rationale for using a case study methodology that incorporated multiple techniques for generating data, and I explain the ways in which these, and my chosen data analysis and interpretation methods, directly addressed the needs of the research questions, my constructionist views of knowledge, and the ontological reality of the research context. Finally, I describe how I addressed important ethical considerations and issues of quality throughout the research process.

4.2 RESEARCH METHODOLOGY

I undertook this research with the overriding aim to reduce educational rhetoric–reality gaps, particularly in relation to the practice of socially-critical pedagogy as effective education for the environment, in order to facilitate social transformation towards environmental sustainability. This aim reflected not only my personal values and critical perspectives on human–environmental relationships, but also the ultimate goals of SSP. My belief was that facilitating social transformation through pedagogy required teachers to more deeply and critically assess: the role of education in shaping human–environment relationships, the intended and unintended outcomes of pedagogy, and the effect of structural and cultural elements of their working environment on their teaching practices. I envisaged participatory and collaborative research leading to critical reflection, and ultimately educational reform—the essence of critical research. However, as Morrow and Torres (2002, p.55) pointed out, critical research undertaken in this manner is often ineffective as it fails to expose the "multiplicity of the forms of knowledge" within a social context. Instead, "social agents and the documents of a culture must be confronted with cognitions and experiences that allow a form of 'distanciation' from everyday reality based on explanatory accounts that elucidate the constraining and enabling effects of social structures" (Morrow & Torres, 2002, p.44). In order to explore and gain an understanding of the role of these 'effects' on teacher practices, I embraced an interpretive approach to investigate teachers' perspectives of the contextually-specific structural and cultural elements that affected their practices and enabled educational rhetoric–reality gaps to develop. This interpretive approach was framed by a constructionist perspective on knowledge.

The constructionist perspective sees meaning as "constructed by human beings as they engage with the world they are interpreting" (Crotty, 1998, p.43). Therefore, answers to my research questions were neither predictable, nor bounded by preconceived assumptions, and needed to be constructed from teachers' unique experiences of the "temporal, cultural, and structural contexts" in which they practiced and in which educational rhetoric–reality gaps occurred (Charmaz, 2000, p.524). This required me to seek a wide range of "human practices, human events [and] human situations" within teachers' working environments (Crotty, 1998, p.87) in order to interpret teachers' "culturally derived and historically situated interpretations of the social world" (Crotty, 1998, p.67).

In this research, the epistemological perspective that meaning is constructed through the interplay of "humans engaging with their human world" (Crotty, 1998, p.45) was supported by the use of a structuration ontological framework which positioned "structure, agency and social system as mutually transformative elements" (1987, p.276)—an ontological perspective which facilitated a holistic investigation of the environment in which educational rhetoric–reality gaps occurred (outlined in Chapter 3). Most significantly, the notion of a duality of structure and agency represented by this ontological perspective guided exploration of the complex and dynamic relationships between both the structural and hermeneutic aspects of a teaching environment that supported the development of rhetoric–reality gaps rather than focussing on one to the exclusion of the other. This required me to seek research opportunities in which:

> the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context...[and when there is a] desire to understand complex social phenomenon in a way that enables the holistic and meaningful character of real-life to be retained (Yin, 1993, p.2).

A case study methodology enabled me to enter into an authentic educational context to "uncover interaction of significant factors characteristic of the [rhetoric–reality gap] phenomenon" (Merriam, 1998, p.10) through a variety of data generation techniques that were congruous with the epistemological and ontological foundations of my interpretive research.

4.3 CASE STUDY

The rhetoric–reality gaps that I investigated were the result of complex and dynamic interactions between teachers' personal ideologies, the rhetoric of educational theory, and the reality of pedagogy, during implementation of SSP. Giddens (1982) noted that when investigating such complex social interactions "the most advanced form of understanding is achieved when researchers place themselves within the context being studied" as this is the most effective manner in which to "understand the viewpoints and the behaviour that characterises social actors" (p.15). Case study methodology therefore provided an appropriate

vehicle for investigating the "context-dependent knowledge and experience" of teachers (Flyvbjerg, 2004, p.421) by enabling me to " 'close-in' on real-life situations and test views directly in relation to phenomena as they unfold in practice" (p.428). The close and flexible hermeneutical and dialectical interaction between myself and teachers provided opportunities to develop "thick description" (Stake, 1995, p.102); a rich and holistic understanding of the interrelated nature of the "temporal and spatial, historical, political, economic, cultural, social and personal" aspects of the teachers' practices (p.43). These contributed to the construction of "a nuanced view of [the] reality" of rhetoric–reality gaps (Flyvbjerg, 2004, p.422).

The paradox of case study research is that "by studying the uniqueness of the particular, we come to understand the universal" (Simons, 1996, p.231). Interpretation of the strongly idiographic data generated in this style of research provides neither universal statements, nor far reaching generalisations (Burgess & Rudduck, 1993; Smith, 1995), but is far from irrelevant (Green, 2002; Merriam, 1998). Flyvbjerg (2004) noted that when aiming to develop a rich understanding of a phenomenon, such as the nature of educational rhetoric–reality gaps, neither a single representative case[8], nor a random sample of cases may be an effective research strategy as "the typical or average case is often not the richest in information" (p.425). Understanding a phenomenon is often better served by identifying critical factors such as causes, or intended and unintended consequences, as "contextualised data can inform the practitioner much more effectively than generalizations from statistical data" (Flyvbjerg, 2004; Stake, 1987, p.62), particularly when it is "epistemologically in harmony with the reader's experience" (Peters et al., 2003, p.131). In addition, "atypical or extreme cases often reveal more information because they activate more actors and more basic mechanisms in the situation studied" (Flyvbjerg, 2004, p.425). In other words, Flyvberg (2004) argued that in order to "achieve the greatest possible amount of information on a given problem or phenomenon" (p.425) it is often beneficial to seek to "clarify the deeper causes behind a given problem and its consequences rather than to describe the symptoms of the problem and how frequently they occur" (p.425) and that it is therefore often "appropriate to select some few cases chosen for their validity" (p.425). Thus, an essential component of my research involved identifying both the representative and distinctive features of each case in order to determine which cases could best contribute to a detailed understanding of educational rhetoric-reality gaps. Developing the criteria for selecting these appropriate cases was therefore a critical requirement.

In this research the cases of the eleven teacher participants exposed the plurality of ideologies and experiences that identified both the range and extremes of possibilities within similar educational contexts and classroom situations (Flyvbjerg, 2004; Smith, 1995). Together, these cases presented a generalised, or representative, view of the nature of educational rhetoric-reality gaps. However, in light of Flyvberg's (2004) recommendations discussed above, and my

[8] Hereafter, the term 'case' is used to refer to a case study.

aim to undertake a detailed investigation of the "deeper causes" (p.425) of educational rhetoric-reality gaps, I identified three representative and distinctive features that enabled cases to be linked and/or separated: the teacher's choice of pedagogy; whether or not the school had achieved SSP accreditation; and whether or not the teacher practiced in a supportive work environment. These became the selection criteria for identifying four strategic cases (see Section 4.5.2), each "very different on one dimension" (Flyvbjerg, 2004, p.426). In other words, each strategic case was chosen for its potential to not only represent ideas contained in the remaining supporting cases, but also to provide insights into the role of one 'dimension', or selection criteria, in the development of educational rhetoric-reality gaps. My use of strategic cases in this manner enabled me to direct my analysis towards gaining a deeper understanding of the most critical elements of the research problem. The strategic cases highlighted the "significance of various circumstances" in the development and maintenance of educational rhetoric–reality gaps, and may be considered "multiple" in that they exposed many different ways in which "ideas and evidence", and structure and agency, may be linked (Ragin, 1992, p.225). These cases revealed the teachers' perspectives of the reality of their work, providing valuable insights into the nature of educational rhetoric–reality gaps and informed recommendations for reducing these (Merriam, 1998).

4.3.1 Identifying boundaries

The structuration ontological framework (Chapter 3) underpinning this research outlines potential roles and effects of the duality of structure and agency within any social context, but does not expect these to be fully understood through any one investigation (Parker, 2000). The case study methodology used in this research enabled the research questions to be addressed through investigation of ontology-in-situ—"particular practice[s] situated in a particular time and place" (Stones, 2005, p.35). Each case explored an authentic social context bounded by a "broader institutionalised and system-structural" location and "position-practices" explained below (Stones, 2005, pp.48, 83).

The structuration ontological framework, particularly the notion of the duality of structure and agency, required that both data generation and data analysis of each case acknowledged the richness of the educational context in which rhetoric–reality gaps existed, and worked not to separate variables from that context but integrate them to provide a holistic understanding (see for example Yin, 1993). This necessitated consideration of "the often delicate and subtle interlacings of reflexively organized action and institutional constraint" (Giddens, 1991b, p.204) in ways that acknowledged the roles, or "position-practices" (Stones, 2005, p.48), of: individual teachers in determining classroom practices; power relations established within the schools in which these teachers practiced; and the unique or contextually specific structural components of the school environments (Giddens, 1984). The school environments in which the teacher participants worked represented well-established "politically and territorially constituted system[s]" characterised by "regularities of social reproduction…social practices…organised in

and through the behaviour of contextually located actors" (Giddens, 1989, p.300). The behavioural culture of each school pre-existed not only this research, but also the work of the research participants in that school (Crotty, 1998). The "position-practices" of teachers within such school environments defined an authentic context within which to locate this research.

Within this authentic context, implementation of SSP as a vehicle for developing socially-critical pedagogies provided opportunities to explore teachers' attempts to implement a specific practice within their usual work environment—a situation in which the prevalence of rhetoric–reality gaps had been well-established (Section 2.6) and which appropriately bounded cases designed to investigate the nature of educational rhetoric–reality gaps, how they were produced, and how they were experienced and understood by teachers (Stones, 2005, p.48).

4.3.2 Research participants

The research participants were qualified and Victorian-registered teachers working in primary schools identified by The Gould League and the Centre for Education and Research in Environmental Strategies (CERES)[9] as committed to implementing SSP. It was difficult to recruit participants for this research. Only a small number of schools were planning to implement SSP during 2006, and most significantly, both principals and teachers were worried about the implications of SSP on their work environment.

Participants were initially sought from each of the six schools that, at the time of this research, had formally committed to begin school-wide implementation of SSP during 2006. Several principals declined permission for my research to be conducted in these schools, citing teacher displeasure and anxiety about impending demands to change their practices in order to accommodate SSP. Only eight teachers from three of the schools were able and willing to participate in this research (Table 4.1).

In order to provide the most "robust" (Burgess & Rudduck, 1993) understanding of teachers' experiences of implementing SSP and the factors leading to educational rhetoric–reality gaps, participants were also sought from schools, identified by CERES as having achieved final accreditation for successfully and fully implementing SSP during the previous five years. From this group, I found just three teachers, from three different schools, who were able and willing to participate (Table 4.1).

Despite the difficulties I experienced in recruiting research participants, the eleven teachers brought to this research a range of perspectives from within and between schools, at both similar and different stages of SSP implementation. This theoretical sampling (Glaser & Strauss, 1967) ensured development of a diverse range of cases with both similar results ("literal replication") and predictably contrasting results ("theoretical replication"), yielding a rich understanding of the factors most critical to teachers' experiences (Yin, 1993, p.48).

[9] The Gould League and CERES organisations were responsible for the implementation of the Sustainable Schools Program in Victoria at the time of this research.

It is noteworthy that during the recruitment process, potential teacher participants were nominated by principals within consenting schools. I contacted all of the nominated teachers, and all agreed to participate. It was evident that the principals decided which teachers to nominate according to their personal expectations of SSP, the desire to present their school favourably, and their knowledge of teacher anxiety concerning demands to alter their well-established practices. In addition, several principals were willing for teachers to discuss their work, but were themselves unwilling to discuss the implementation of the program within their school. The implications of this apparent sensitive nature of the implementation of SSP for this research are discussed in Chapter 6.

4.4 RESEARCH TECHNIQUES

In order to address the research questions, several techniques for generating and analysing data were required in order to gain a holistic understanding of the complex human and structural relationships of the school environments in which educational rhetoric–reality gaps occur.

4.4.1 Data generation

Case study methodology facilitated exploration of a wide variety of evidence through a range of data generation techniques that maximised the potential to expose the unexpected as well as the obvious, and provided "both unique and universal understandings" (Simons, 1996, p.225). This was essential in the context of understanding the rhetoric–reality gap phenomenon in response to the implementation of the innovative practice of SSP, for which there were no pre-existing context-specific comparisons for predicting outcomes.

The use of the structuration ontology-in-situ framework (see sections 3.13 and 3.14) to understand the social and structural relationships of the educational environment in which this research was located was instrumental in focusing the generation of data to reveal the most holistic understanding of the rhetoric–reality gap phenomenon. As indicated by Giddens, the theory of structuration was not intended to be imported "*en bloc*" into a single empirical research (Giddens, 1989, p.294, original italics). Figure 4.1 indicates the way in which the concepts of structuration informed this research by being "used in a selective way in thinking about research questions [and] interpreting findings" (Giddens, 1991b, p.225). Techniques for data generation were chosen for their potential to provide insights to specific data exploration questions, each of which was designed to directly aid understanding of the role of each structuration element in the educational rhetoric–reality gap phenomenon of an educational environment. As the "primary instrument" for data generation and analysis I undertook the roles of participant observer, non-participant observer and interviewer (Woods, 1992) as a "mixed process of observation and decoding" of the structural and hermeneutic relationships which constituted the "action-horizon" of teachers implementing SSP within their work environments (Giddens, 1989, pp. 297-298).

Table 4.1 Schools, research participants[1] and interview dates

South Bay Primary (Preparing to implement SSP in 2006) Government school attended by 100 students, approximately 50 km from Melbourne, in a semi-rural region with a local population of about 375	***Helen**** 21/11/2006	*Principal*
	Andrew 17/10/2006	SSP coordinator Physical education grades 3–6
	#Lisa 17/10/2006	Generalist teacher grades 5–6 Science teacher grades 3–6
West Quay Primary (Preparing to implement SSP in 2006) Government school attended by 110 students, approximately 100 km from Melbourne in a predominantly rural area with a population of about 800	***Philip**** 30/11/2006	*Principal*
	Simon 30/11/2006	SSP coordinator P–6 Science and ICT[2] Reading Recovery grade 1
	Fran 2/11/2006	Generalist teacher levels 4–5 LOTE[3] grades P–6 and OHS[4]
East Valley Primary (Preparing to implement SSP in 2006) Government school attended by 600 students, approximately 60 km from Melbourne, in a semi-rural area with rapidly developing residential zones and a local population of around 13 000. Utilises classroom and outdoor facilities at East Valley Nature Park, 1 km from the school	**Robyn** 9/11/2006	Generalist teacher, Prep
	Anita 9/11/2006	Generalist teacher, Prep
	Julia 16/11/2006	Generalist teacher grades 1–2
	#Karen 30/10/2006	Integrated ICT and environmental education
Mountain Primary School (Fully accredited SSP school) Government school attended by 550 students 10 km from a regional centre 500 km from Melbourne, characterised by residential, semi-rural, and manufacturing zones, and a strongly multicultural population of about 45 000	**#Elizabeth** 14/11/2006	SSP coordinator Generalist teacher grade 3
	Stephanie* 14/11/2006	*Kitchen-garden manager*
	Mary* 2/11/2006	*Principal*
Sirius College (Fully accredited SSP school) Primary campus of a large, multi-campus private school attended by 500 students, about 20 km from Melbourne in a bushy residential suburb with a local population of over 20 000	**#Cathy** 22/11/2006	SSP coordinator Generalist teacher grade 3 Middle School coordinator
Ocean Primary School (Fully accredited SSP school) Government school attended by 500 students situated approximately 30 km from Melbourne, in a residential and semi-rural region with a local population of about 6000	**David** 24/11/2006	SSP coordinator Generalist teacher grade 3 Teacher mentor

***** Non-teaching school staff referred to in chapters 5-8

Strategic cases

[1] Pseudonyms are used for all schools and research participants

[2] Information and Communication Technology

[3] Language Other Than English Education

[4] Occupational Health and Safety Officer

4.4.2 Participant observer

Prior to developing interview and observation instruments I participated in several professional development programs offered by CERES for teachers (but occasionally also attended by school principals) prior to beginning to implement SSP. These sessions provided insights into the role of rhetoric in teachers' understanding of curriculum guidance documents related to SSP and the socially-critical pedagogy embedded in them. My participation in these sessions provided a shared social context in which to build rapport with the research participants, and provided opportunities for us to develop a shared language related to the ideologies and conventions of SSP (Burgess & Rudduck, 1993). Building rapport in an environment in which participants and researcher interacted as equals assisted to reduce, although not eliminate, the traditional power asymmetries during subsequent interviews by challenging the participants' expectations of their role in this research (Benney & Hughes, 2001; Scheurich, 1997). These interactions created a "context for the research participant's experience to develop and be made known in conversation with the investigator" (Jankowski, Clark & Ivey, 2000, p. 244). This increased the potential for open communication by ensuring that the teachers and I had shared understandings and equal access to the language, or rhetoric, of SSP: this was an essential precursor to developing rich understandings from hermeneutic and dialectic research methods (Burgess & Rudduck, 1993, p.98) by providing a "commonality that provides a basis for the interpretation that is to emerge" (Crotty, 1998, pp.90-91). The educational goals of SSP explored during these sessions informed the criteria used to assess the teachers' classroom practices and highlighted critical, specific ontological facets of the teachers' work environments. Professional development sessions provided insights into the rules and policies (structured sets), educational aims (structured principles) and hierarchical systems (structure) that influenced the teachers' implementation of SSP (Figure 4.1). I also maintained a research journal to record my observations, interactions, and the development of rhetoric.

4.4.3 Classroom observation

Prior to conducting interviews I observed lessons chosen by each teacher to best illustrate their work to effectively implement SSP. Although I was an outsider in these classrooms, these sessions provided opportunities to determine how the teachers were implementing SSP and to what extent they were practicing socially-critical pedagogy as part of SSP, and therefore, to identify actual and potential rhetoric–reality gaps. My classroom observations provided insights into critical ontological facets, such as established behavioural routines, and evidence of the structural properties, or constraints, unique to each teacher's work environment.

These sessions also provided the most authentic insights possible into the reality of the context in which rhetoric–reality gaps occur (Burgess & Rudduck, 1993), and enabled interpretations and reflections provided by teachers during subsequent interviews to be more accurately contextualised. My observations of the teachers' classroom practices also contributed to understanding the nature of educational rhetoric–reality gaps through insights into the influence

of not only conscious understandings (such as self-reports made in subsequent interviews), but also unconscious and non-conscious ideas (the relationship between practical and tacit knowledge) in directing teachers' classroom practices (Silverman, 2001). This was most beneficial for comparing each teacher's perception of their practice with my perception of their practice as an observer, and was congruous with the constructionist view that human behaviour is best understood through acknowledging both subjective and intersubjective influences (Guba & Lincoln, 1994).

Observation criteria forms were used to ensure that the data generated during classroom sessions remained consistent and incorporated comparable elements to assess the teachers' attempts to implement the socially-critical pedagogy of SSP. The essential pedagogical elements (for example, teacher and student actions and participation, teaching space and learning organisation) were interpreted from Kemmis' (1983) descriptions of curriculum orientations, and these were organised into an observational directive modified from Weiss (1997). Entries in my research journal also ensured that other aspects of the teachers' pedagogy and working environment were recorded. Classroom observations were undertaken on the dates shown in Table 4.1.

4.4.4 Interviews

Interviews were the primary vehicle for encapsulating research participants' perceptions of their experience of implementing SSP (Patton, 1990, p.278). Each interview aimed to provide insights into the relationship between agency and structure in the teachers' work environments, particularly in relation to ontological security, unconscious motives, practical consciousness and discursive consciousness. Interviews also highlighted aspects of both implicit and explicit rules and resources as factors influencing the teachers' classroom practices, and revealed critical aspects of social systems of interaction and structured principles directing the teachers' perceptions of their actions. Highlighting the nature of such ontological facets was critical for addressing the research questions concerning the nature of rhetoric–reality gaps and identifying ways in which to reduce them. Interviews achieved this by incorporating two complimentary parts.

Part 1: key questions

The first part of each interview was centred on three key questions:

1. What does the Sustainable Schools Program mean to you?
2. What are your reasons for undertaking the Sustainable Schools Program with your students?
3. What learning outcomes do you focus on when teaching the ideas and concepts of the Sustainable Schools Program?

Sensitising elements of structuration: data generation and data analysis

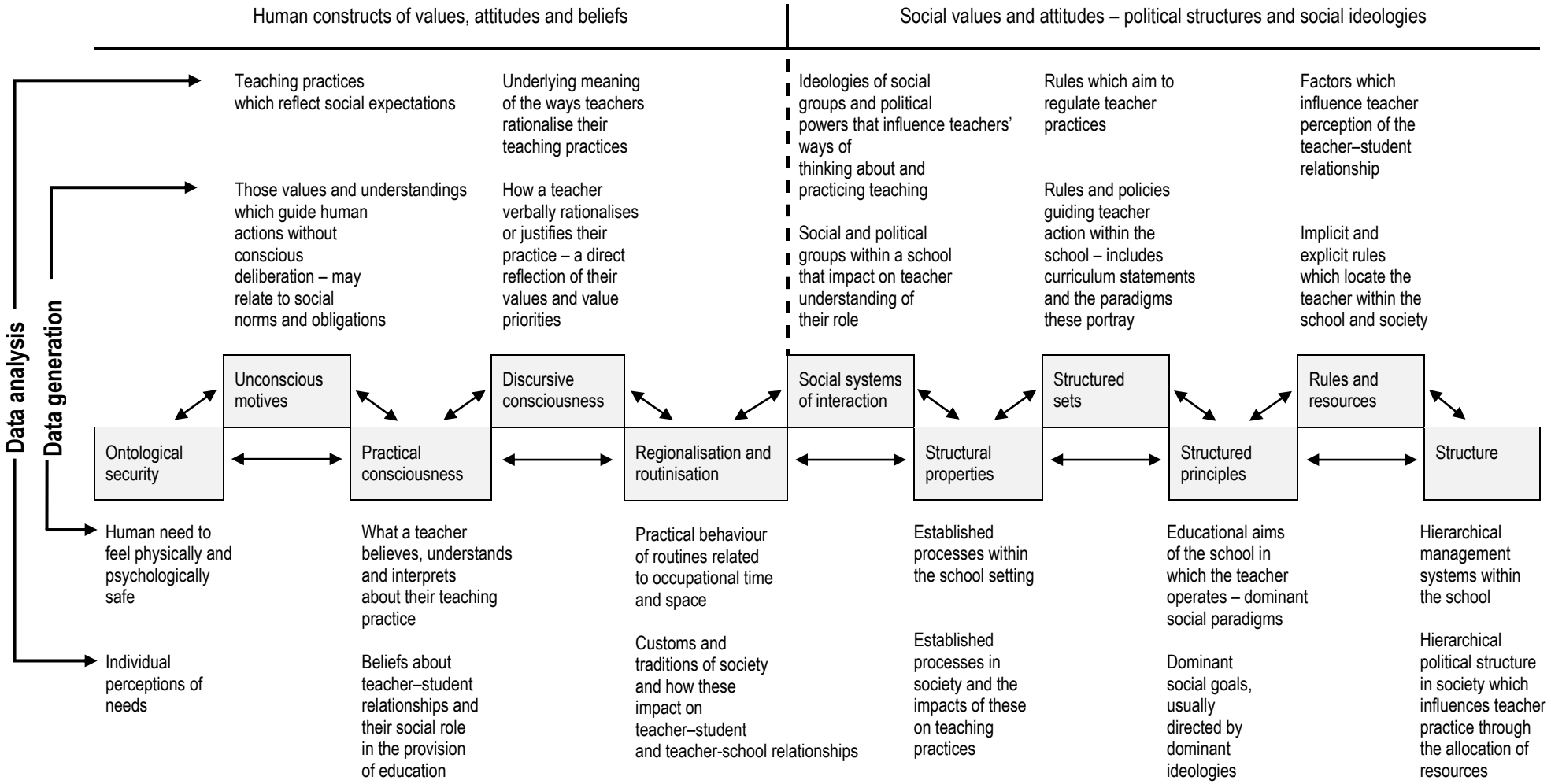


Figure 4.1 Linking structuration ontological elements to data generation and exploration (adapted from Giddens, 1984; Turner, 2003a, p.488).

These key questions assisted me to develop links between the individual and unique cases by enabling the direct comparison of critical ideas between teachers (Smith, 1995; Stake, 1995, p.65). The use of semi-structured (Fontana & Frey, 1994), stimulus specific, but open-ended, questions (Merton, Fiske & Kendall, 2001) encouraged teachers to share their broadest perspectives of SSP and their participation in implementing it within their school. In line with my constructionist approach and use of the structuration ontological framework, this provided insights into research teachers' "language-based propositional [discursive] knowledge" in terms of explicitly stated "intentions, values, attitudes, and beliefs" (Plack, 2005, p.228) for comparison with the reality of their unconscious knowledge reflected in the teaching practices that I had observed.

During these interviews, the teachers were free to use their preferred discourse and communication conventions, thereby highlighting: the degree to which each had embraced the rhetoric introduced during professional development programs; the degree to which earlier formed shared understandings remained valid; and the range of different meanings held by different teachers, at different times, and in different contexts (Scheurich, 1997).

Part 2: hypothetical scenarios

The structure of the second part of each interview reflected: (1) my observation of the lack of a shared understanding, or language, for discussing educational theory in relation to pedagogy in practice, both between me and teachers, and between teachers; and (2) my need to explore all of the aspects of teachers' knowledgeability (see Section 3.4) represented in the structuration ontological framework (Figure 4.1).

Three short, written hypothetical scenarios, each of which incorporated specific "assertions about a possible or hypothetical reality" (Wood, 2010, p.2) of a distinctive pedagogical approach to implementing SSP formed the basis for interview and discussion. Each scenario represented different understandings of the nature of knowledge, teacher–student relationships, the role of assessment, and the nature of the school community. This assisted teachers to connect "with the reality being researched" by being able to "explore circumstances" they may not have previously experienced (Wood, 2010, pp.4 & 7). The use of hypothetical scenarios provided a neutral space for interaction, welcomed by teachers already anxious about the implementation of SSP (van der Heijden, 2005) and allowed a degree of separation of subject and object, or methodological bracketing, which enabled teachers to consider the internal and external factors that influenced pedagogy separately (Cassidy & Tinning, 2004).

Scenarios developed for this research are included in the Appendix and are annotated with the essential characteristics of each pedagogical approach (unannotated copies were used in interviews), modelled on the curriculum orientations work of Kemmis, Cole & Suggett (1983). The teachers were asked to:

> Read the following three hypothetical scenarios. Each is an example of one approach that a teacher might take to implement aspects of the Sustainable Schools Program in their classroom. The topic of 'native plants' has been chosen to demonstrate these three alternative approaches and teaching styles. These are not presented in any particular order.

Each teacher was encouraged to offer comments about the scenarios as they read. When finished, and depending on the extent of their previous comments, semi-structured questions were used to prompt them to reflect more deeply upon the hypothetical scenarios, to consider aspects of the scenarios they had not commented upon, and to confirm and expand ideas as they might relate to SSP. Such questions also ensured the generation of comparative data from each case. For example:

1. Of these hypothetical scenarios, which do you think fits best with your understanding of the learning outcomes for the Sustainable Schools Program? Why?
2. Of these hypothetical scenarios, which corresponds most closely to the way in which you currently implement the Sustainable Schools Program in your classroom?
   Give some examples of how you do this?
3. Describe how you would most like to implement this program with your students.
4. What would most help you to implement the program in the manner you described?

The hypothetical scenarios enabled teachers to position themselves within educational practice theory in a manner which developed understanding through commonly shared experiences and broad understandings rather than a specific academic language. This elicited rich discussions by encouraging teachers to explore ideas most central to their own constructions and interpretations of teaching as a practice, using their own language, and unencumbered by a framework defined by specific questions (Burgess & Rudduck, 1993; Merton et al., 2001). The use of the scenarios as a reflective interview process encouraged teachers to consider a broad range of ideas. Teachers' comments were often not specific to their implementation of SSP, but indicative of more personal ideals or unconscious knowledge (Scheurich, 1997), often highlighted by the use of different discourses used when referring to different scenarios.

The use of the hypothetical scenarios as part of the interview process provided valuable insights into both the conscious and non-conscious knowledgeability underlying the classroom practices and teaching ideals of teachers, and their perspectives of the structural elements of their community, school, and classroom. Understanding these aspects of the ontological nature of each teacher's working environment was vital for exploring the research objective of why

teachers were implementing SSP in the ways observed and therefore central to understanding the nature of educational rhetoric–reality gaps. In addition, the rich texture of the naturally expressed language of teachers captured in these interviews represents a language accessible to other teachers, and therefore informs the language appropriate for introducing potential interventions to assist both current and future teachers to reduce rhetoric–reality gaps (Burgess & Rudduck, 1993).

Interviews were conducted on the dates shown in Table 4.1. Teachers nominated the time, place and duration of all interviews. Interviews were audio-taped to ensure accurate recording of teachers' ideas and the language they used to convey these. Following each interview, I recorded the main themes and my general impressions, particularly observations not able to be captured by audio recordings, in my research journal.

4.4.5 Additional data

In addition to the data generated through my observation of teacher practices and interviews with teachers, a range of valuable information and alternative perspectives were developed from more informal sources. Conversations with school principals in particular, provided valuable insights into the structural elements of the school environment within which teachers were practicing. Conversations with individuals associated with the development of SSP, and those assisting schools and teachers to implement the program, were recorded in a research journal. Unpublished documents, including policy statements, curriculum directives, programs and lesson plans, were gathered from teachers to illustrate their attempts to implement SSP. Ideas generated from informal interactions and unpublished documents were recorded in my research journal, and contributed significantly to the progressive analysis and interpretation of the case study data.

4.5 DATA ANALYSIS AND INTERPRETATION

Constructing an understanding of the nature of educational rhetoric–reality gaps was an ongoing process of analysis and interpretation that continued throughout all stages of this research. As a result, the boundary between data analysis and data interpretation is not precise, but may be represented by four main phases; data preparation, selection of strategic cases, structuration thematic analysis, and coding of selected data. A research journal was used to record the development of perceptions and understandings throughout the research activities.

4.5.1 Data preparation

Full transcriptions of all audio-taped interviews provided a convenient medium for the manipulation, coding and storage of the voluminous data generated. Transcription, an interactive process, was an important component of data analysis which required "deep listening, analysis, and interpretation" (Hesse-Biber & Leavy, 2006, p.347). This facilitated a deep familiarity with the data generated, and an opportunity to "connect with this data in a

grounded manner" (p.347). In recognition that communication is much more than simply spoken words, transcriptions, audio-tapes and journal entries made during and following each interview were compared. Transcriptions were annotated to indicate unspoken or underlying meanings, such as apparent attitudes indicated by changes in tone, or indecision marked by excessive pauses, to reduce the distortion of meaning that occurs with representing the interview interactions simply as text (Hesse-Biber & Leavy, 2006). Many of the repetitive, "tentative" phrases, such as "you know?", were removed as inconsequential to the clarity of the transcripts, although these aspects of language did contributed greatly to meanings developed during interviews (Hesse-Biber & Leavy, 2006, p.346). The transcription process also provided insights into the possible effects of the intersubjective nature of data generation interactions. Revealing the unintended, double hermeneutic, consequences of these interactions was important in that data collected reflected the teachers, myself as the researcher, and the nature of our interaction (Giddens, 1984; Glaser & Strauss, 2001; Loyal, 1998).

4.5.2 Strategic Cases

Through data analysis and interpretation I was able to identify four strategic cases for their ability to provide a holistic understanding of the nature of educational rhetoric–reality gaps and therefore to inform recommendations for reducing these (Merriam, 1998). The criteria for identifying these included the reality of each teacher's pedagogy, the degree to which SSP had been successfully implemented in their school, and their perception of the level of support they received from their work environment. These criteria emerged from the data analysis as the most significant of "various circumstances" (Flyvbjerg, 2004, p.426) for providing insights into interactions between the different ontological elements which contributed to the teachers' perceptions of their work environments, and ultimately influenced the development of observed educational rhetoric–reality gaps (Flyvbjerg, 2004; Ragin, 1992, p.225) (Table 4.2).

4.5.3 A structuration thematic analysis

Data analysis aimed to provide insights into the nature of the rhetoric–reality gap phenomenon through consideration of the three main factors of: rhetoric—the teachers' understanding of curriculum guidance documents related to SSP and the socially-critical pedagogy embedded with them; reality—the manner in which the teachers were implementing the socially-critical pedagogy of SSP; and the teachers' experiences of implementing SSP within their school—relationships between agency and structure in the teachers' work environments. This was achieved by exploring each case for insights into each of the research sub-questions:

1. How are teachers implementing the Sustainable Schools Program?
2. Why are teachers implementing the Sustainable Schools Program in these ways?
3. To what extent are teachers practicing socially-critical pedagogy as part of the Sustainable Schools Program.

Table 4.2 Criteria for strategic cases

Teacher	School	Selection criteria		
		SSP pedagogy	**SSP progress**	**Work environment**
Lisa	South Bay Primary	Poor—strongly neo-vocational	Beginning implementation process	Supportive
Karen	East Valley Primary	Good—approaching socially-critical	Beginning implementation process	Generally unsupportive
Elizabeth	Mountain Primary	Poor—strongly neo-vocational	Fully implemented—5 star accredited	Generally unsupportive
Cathy	Sirius College	Excellent—often socially-critical	Fully implemented—5 star accredited	Highly supportive

The ideas and concepts arising from the exploration of each case in relation to these questions were linked to the various elements of the overarching structuration ontological framework to establish the character of the human and structural facets of the rhetoric–reality gap phenomenon that data generation techniques were designed to expose. Data exploration questions were used to link the data generated to each of the ontological human and structural facets, as shown in Figure 4.2. Insights gained during this analysis were tabulated to facilitate comparison of the different ways in which these facets manifested and interrelated in different cases, thereby highlighting the ways in which particular relationships between agency and structure in the teachers' work environments influenced the presence or absence, and the nature, of rhetoric–reality gaps.

Data analysis incorporated data reduction by partitioning the data and identifying aspects of the data for more detailed interpretation through a coding process (Miles & Huberman, 1994).

4.5.4 Coding of selected data

A coding process, adapted from the grounded theory approach outlined by Glaser and Strauss (1967), facilitated detailed investigation of the human and structural facets that I identified, from the structuration thematic analysis, as responsible for the development of educational rhetoric–reality gaps. Coding provided a mechanism "to further…knowledge of subjective experience, and to expand its representation while neither remaining external from it nor accepting objectivist assumptions and procedures" (Charmaz, 2006, p.269), in order to gain "a

fresh perspective in a familiar situation" (Stern, 1994, p.20). This process allowed me to identify specific intervention points with the greatest potential for reducing the rhetoric–reality gaps that arose from the implementation of socially-critical pedagogies of SSP, thereby addressing the research question 'How can educational rhetoric–reality gaps be reduced?' All coding was undertaken through the use of hand-written notes.

Initial coding (Charmaz, 2006) enabled me to identify the major concepts that emerged from the data through the identification of actions. The use of Charmaz's notion of a "language of action" to develop codes that reflected behaviours or practices as opposed to topics, ensured that coding remained descriptive and "close to the data", and suppressed "tendencies to make conceptual leaps" in order to identify the broadest range of both expected and unexpected actions (2006, p.48). The "patterns and contrasts" (Charmaz, 2006, p.60) in the concepts that emerged from the "fairly large number of [richly described] comparable incidents" (Langley, 1999, p.700) enabled me to compare the understandings I developed through my observations of teachers' practices (representative of unconscious and non-conscious, or tacit, knowledge), with the data generated from interview statements and discussions (representative of teachers' conscious, or discursive, knowledge) (Giddens, 1984).

Codes from each case were compared and synthesised in order to build a set of themes, or specific analytical categories, which allowed me to more "incisively and completely" identify concepts across all cases (Charmaz, 2006, p.58). This process was directed by a set of "theory generating questions" (Böhm, 2004, p.271) that "uncover[ed] relationships among categories" while ensuring that causal relationships were grounded in the data (Strauss & Corbin, 1990, p.127):

- What?—What is the issue and/or phenomenon?
- Who?—Who is involved? What roles do they play? How do they interact?
- How?—How does this phenomenon manifest itself? What aspects are, or are not, addressed?
- When?—How long? Where? How much? How strongly?
- Why?—What reasons are stated and/or deduced?
- For what reason?—What intentions are stated and/or deduced?
- By what means?—methods, tactics and/or strategies (Böhm, 2004, p.271).

"The constant comparative nature of the questions" ensured that patterns that I identified from the data were explored in a manner that exposed a holistic view of the duality of structure and agency in the generation of educational rhetoric–reality gaps (Scott, 2004, p.115). Critical appraisal of the theory represented by categories, particularly in relation to "relationships and interactions" and "consequences" led to the development of a core category—"a central

phenomenon about which all other major and minor categories" could be related (Scott, 2004, p.120). I identified the core category, 'belief in the role of a teacher', to represent the key facet of the human-structure relationships responsible for the development of the rhetoric–reality gaps that I had observed (Böhm, 2004).

4.6 ISSUES OF QUALITY: RELIABILITY, VALIDITY AND USE

Issues of reliability and validity of data generated and interpreted from hermeneutic and dialectical qualitative interactions are central to ensuring the "quality" of qualitative research that aims to "generate understanding" (Stenbacka, 2001, p.551). However, there is no established terminology, single set of rules or schema for addressing these complex issues (Miles & Huberman, 1984). In this research, quality was facilitated by the use of data generation and interpretation methods congruous with the research issues, constructionist approach and structuration framework (Healy & Perry, 2000), conceptualized here in terms of "dependability" (Lincoln & Guba, 1985, p.300; Seale, 1999), "trustworthiness" (Seale, 1999, p.266) and "transferability" (2004; Plack, 2005. p.231).

Dependability was facilitated by the use of multiple cases and multiple data generation methods (Yin, 1993). This was congruous with the constructionist view that understanding is "contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context" (Crotty, 1998, p.42; Patton, 1990), and thus, any interaction or situation incorporates "diverse constructions of reality" (Golafshani, 2003, p.604). In light of this, "to acquire valid and reliable multiple and diverse realities, multiple methods of searching or gathering data" were incorporated into this research (Golafshani, 2003, p.604). The use of multiple cases captured the plurality of the human and structural facets (Blaikie, 2000; Scheurich, 1997) perceived by teachers, and principals, to have influenced their implementation of SSP. Comparative data generated through the development of observation criteria, and semi-structured interview questions facilitated the comparison of cases.

During the conduct of each case, "methodological triangulation" (Stake, 1995), the use of multiple techniques for generating data, contributed most effectively to ensuring high levels of data validity and reliability (Yin, 1993). For each case, the comparison of data generated from observations and interviews enabled me to identify both consistencies and inconsistencies between the reality of a teacher's practice and the rhetoric of that teacher's perceptions of their practice (Lather, 1986; Mishler, 1991). In addition, the incorporation of "member checking" (Stake, 1995) increased the reliability of data generation and interpretation through the use of qualifying questions to confirm ideas, perceptions and developing understandings.

The trustworthiness, or rigor, of this research was facilitated by continuous consideration of "subjectivity, reflexivity, and the social interaction of interviewing" (Davies & Dodd, 2002,

p.281). Self-reflexivity, through the use of a research journal, allowed me to consider my "experience with and understanding of the phenomenon, the teachers' understanding of the phenomenon" and my "on-going sense-making process" (Jankowski et al., 2000, p.242). I explicitly identified significant preconceived ideas throughout the data exploration (a process referred to as bracketing by Knaack, 1984). Critical reflection of personal and alternative perspectives ensured that data exploration was comprehensive, and that my interpretations were not only well-grounded in the data, but defendable, or trustworthy, as such (Hesse-Biber & Leavy, 2006).

The issue of transferability, that is, "the degree to which similarities exist between contexts that allow findings to be transferred from one situation to another" (Plack, 2005, p.231), was central to ensuring that the research design supported the ultimate aim research aim to inform and transform teacher practices in order to reduce educational rhetoric–reality gaps. Transferability was facilitated through the development of thick description of both implicit and explicit aspects of human practices in relation to the educational rhetoric–reality gap phenomenon, from within the reality of the educational context (Plack, 2005, p.232). In addition, the research conclusions are presented using the rhetoric developed during interactions with research participants. This ensured that this research is accessible for critical examination and debate by the educators most able to utilise it to inform current and future educational practices (Stake, 2001).

4.7 ETHICAL CONSIDERATIONS

Ethics approval for research involving humans was obtained from RMIT University Human Ethics Committee and the Victorian Department of Education and Training. Throughout this report, I refer to schools and individuals by pseudonym (see Table 4.1) to maintain their right to confidentiality and anonymity.

Hereafter, quotes from research participants are referenced according to their pseudonym, the data type (T refers to interview transcripts, P refers to notes made during phone conversations, D refers to notes recorded in my research journal), and to the day and month in 2006 in which the data was generated (see Table 4.1). Thus, (Cathy, T:22/11) refers to comments contained within the transcript of an interview with Cathy on 22 November, 2006.

4.8 SUMMARY

This chapter has reviewed the ways in which the design of this research facilitated my endeavours to address the research questions in ways that supported Giddens' theoretical perspective of the critical ontological elements and interrelationships related to teacher practices and the development of rhetoric–reality gaps. In short, answers to the research questions were sought through the detailed analysis of strategic cases, each of which I identified through a thematic analysis of ideas gained from a variety of data generation techniques undertaken as part of a case study methodology. Although these processes, in conjunction with the ideals of

Giddens' theory of structuration, provided an ontological and epistemological framework that guided my research, they did not hold the answers to the research questions. The answers to the research questions were grounded within the stories of the teachers who were attempting to implement SSP. Each teacher's story revealed a unique perspective of the dynamic and complex ontological reality of their role as a primary school educator, and of the relationships between structure and agency that defined that role. Their stories are presented in Chapter 5.

5 CASE STUDIES—STORIES FROM PRIMARY CLASSROOMS

5.1 INTRODUCTION

In this chapter I introduce the stories that document the ideas and practices of eleven teachers and two principals from eight Victorian primary schools undertaking SSP (Table 4.1). It is through these stories, or cases, that I addressed the research questions presented in Chapter 1 and explored the development of educational rhetoric–reality gaps. These stories present the experiences and perspectives of those implementing socially-critical pedagogy as part of SSP, and provide insights into the three main factors of educational practice which underpinned the development of educational rhetoric–reality gaps:

- Rhetoric—teachers' understanding of curriculum guidance documents related to the SSP and the socially-critical pedagogy embedded with them;
- Reality—the manners in which teachers were implementing the socially-critical pedagogy of SSP; and
- Teachers' experiences of implementing SSP within their school—relationships between agency and structure in the teachers' work environments (see Chapter 1).

As outlined in Chapter 4 (Section 4.3), these cases include four strategic cases and seven supporting cases. Each strategic case introduces a teacher research participant and the school and community in which they worked. The role of SSP within the school is explained (SSP implementation), followed by a description of the teacher's understanding of the rhetoric or goals of SSP (understanding SSP) and the reality of their pedagogical implementation of these (SSP in practice). Each teacher's perception of different classroom practices is provided (understanding pedagogy), and additional resources they identified as essential for implementing a socially-critical pedagogy are indicated (impediments to socially-critical pedagogy). Finally, the supporting cases of seven teachers and two principals are introduced according to the schools in which each participant worked. Each school community is briefly described. Each research participant is introduced, with an emphasis on highlighting the range of their understandings of the rhetoric of SSP and the reality of how these understandings were put into practice.

As outlined in Chapter 4 (see Section 4.3.2 and Table 4.1) data generation, including interviews, participation in professional development sessions and subsequent lesson observations were undertaken during the final school term of 2006, at the time that several of the schools were beginning to implement SSP. In this and the following chapters, all quotes from the research participants are referenced, as described in Section 4.7, according to their pseudonym, the day and month in which the quote was offered, and the form in which the quote was recorded:

transcripts of audio-taped interviews (T), hand written notes from phone conversations (P) and comments recorded in my research journal (D)[10].

5.2 STRATEGIC CASES

As explained in Chapter 4 (Section 4.5.2) of the eleven cases investigated during this research, four strategic cases (Lisa, Karen, Elizabeth and Cathy) were identified for their ability to most holistically address the research questions presented in Chapter 1 (Flyvbjerg, 2004). The criteria for identifying these emerged from the data analysis, and included the reality of each teacher's pedagogy, the degree to which SSP had been successfully implemented in their school, and their perception of the level of support they received from their work environment. The relationship between each of the strategic cases and these criteria are shown in Table 4.2.

5.3 LISA

Lisa had been the generalist grade 5–6 classroom teacher at South Bay Primary since graduating three years prior to this research. As Lisa was the only teacher at the school with university science training, she was responsible for teaching science and SSP to all students in grades 3–6, in addition to coordinating the delivery of Science and SOSE (studies of society and the environment) curriculum, and leading the transition to VELS[11] in these subjects. Lisa noted that in addition to teaching the environmental understandings required by specific learning topics within the science and SOSE curriculum, she had voluntarily coordinated groups of students to participate in special environmental activities, such as Clean up Australia Day and local community tree planting activities.

South Bay Primary was a small coeducational government school attended by 100 students. It was situated in a small, semi-rural region approximately 50 kilometres from Melbourne, with a population of about 375. The local community was composed predominantly of pastoral families, many of which had been financially devastated by severe drought. A small, but growing portion of the community was represented by hobby farmers whose main employment was outside the town.

At the time of this research, the school was preparing to be mostly rebuilt during the 2006–2007 summer holiday period. The new school was designed to model best practice sustainable development principles, particularly in relation to minimising future energy requirements for lighting, heating and cooling. Similarly, the new classrooms had been designed to enable best practice pedagogy by providing a variety of indoor and outdoor learning spaces. The school

[10] For example, a quote referenced as (Cathy, T:22/11) is sourced from the transcript of an audio-recorded interview with Cathy on 22nd November (2006).
[11] In 2006 the Victorian Essential Learning Standards (VELS) became the official Victorian Government curriculum document for all students to year 10 in Victorian schools.

was within walking distance of a variety of natural landscapes, including a major river, native forests and grasslands, fauna and flora reserves, and rocky hills.

5.3.1 Implementing SSP

Helen, the principal of South Bay Primary decided that the school would begin to implement SSP at the start of the 2006 school year. Helen described SSP as being much "more than environmental education" (T:21/11) and more like a future-oriented education that aimed to provide society with the skills to sustain human–environment relationships into the future. At a personal level, she viewed the implementation of SSP to be "about sustaining [her] own life" (T:21/11) by enabling her to actively incorporate her environmental philosophy into her education role. As school principal, she identified the program as "a vehicle for whole-school change" through which, in conjunction with VELS, she could begin to transform entrenched and outdated teaching practices by developing "a new way of teaching with a new way of learning" (T:21/11). Helen believed that effective pedagogical change would occur only if teachers took "ownership" of the change process, and that in order to do this, teachers needed to develop a shared discourse through which to explore, share and develop new ideas. She supported this by enabling teachers to attend professional training at CERES, and setting aside time for collaborative planning and curriculum design. She encouraged personal learning by requiring teachers to maintain reflective journals as part of implementing SSP.

Helen had allocated the responsibility for coordinating the implementation of SSP to one of Lisa's colleagues, Andrew. Like Lisa, Andrew had been a generalist classroom teacher at South Bay Primary since graduating three years ago. He had taught at all levels within the school and undertaken many additional responsibilities related to student health, critical thinking, and science and technology education. Andrew was heading the school's transition to VELS and was contributing to the planning process for the building of the new school.

Andrew's personal interest in SSP was focused on the opportunity to develop their "new school around sustainability." Andrew viewed SSP as future-oriented education that aimed to protect human life by developing students' knowledge "about the environment" as well as the "effects" or future "consequences," of human activities on the environment. He was adamant however, that implementing these educational goals would not jeopardise the introduction of VELS at South Bay Primary. Instead, the initial SSP modules were to be implemented as discrete sustainability topics, each a context through which "other curriculum outcomes" could be achieved (T:17/10). Each module would be facilitated by one teacher. Andrew stated that this meant that he taught "nothing of interest" as the current SSP topic was the responsibility of the grade 3–6 science teacher, Lisa.

Andrew believed that in conjunction with a newly designed school, SSP would provide opportunities for students to "take ownership of how they affect the environment" (T:17/10) and develop their understanding that achieving environmental sustainability was "a collective

process" in which every person's actions matter (T:17/10). However, he indicated that students had not, nor should have, had any role in the implementation of SSP, as student leadership and choice are problematic—students "don't have a grasp of what they're doing" which means that "learning outcomes might not be met" (T:17/10). He believed that increased financial resources would assist in the implementation of SSP, especially through the provision of expert tuition, which he believed to be highly beneficial, and which could be offered in the form of community participation where people attended classes to "talk to the children" (T:17/10) or through excursions to established environmental educational centers.

5.3.2 Understanding SSP

Lisa strongly supported both her principal's decision to implement SSP, and Andrew's efforts to assist this to occur. She considered herself to have "always been into the environment…and recycling" and believed that her "personal passion" would assist her "to stay interested and focussed in making sure it happens" (T:17/10) and that the program would become fully implemented across the school. She believed that her personal interest would help her to make the most of the new opportunities SSP would present to her, as she believed that as a teacher she had "the power to get out there to kids" and therefore "able to put it [SSP] into the school" (T:17/10).

Lisa considered the main role of SSP to be about "educating the children about the future" by "teaching them good habits so that life in the world becomes sustainable" (T:17/10). She saw SSP as a vehicle through which to establish such habits as accepted and unquestioned routines where "we turn things of, we do things the right way, we don't have to be pushed to do it or asked to do it, it just happens—it's just a natural thing that you do" (T:17/10). However, as effective future-oriented education, Lisa noted that SSP must incorporate two essential elements: (1) opportunities to change students' attitudes towards their consumer practices; and (2) opportunities to develop student ability to take responsibility for their own actions and to speak out about the actions of others.

Lisa believed that society would only become more environmentally sustainable when students are taught how to embrace attitudes that reject "all that consumerism" so that they begin to understand that they "don't need everything brand new", and that they don't need to "have every different game boy, play station or whatever it is going around" (T:17/10). She understood however, that this type of learning would only contribute to "long lasting" change if students also developed "some sense of responsibility" and "the passion to go away and learn" for themselves what they must be "putting into place at home and around the community" (T:17/10). Lisa believed that her role as a teacher in achieving these educational and SSP aims was to develop students' interest in the world, and that in science, this required incorporating a hands-on approach to learning, stating that "we do the hands on experiments because it really draws them [students] in" (T:17/10).

5.3.3 SSP in practice

Lisa chose the second of a two-lesson unit about water, repeated for grades 3–4 and 5–6, to demonstrate her incorporation of SSP ideals into science education. As the structure, content and pedagogy of each class was essentially the same, the discussion which follows combines observations from both classes. As I entered Lisa's classroom I immediately felt out of place, and felt that I needed to wait to be told where to sit to ensure that I did not disrupt the apparently well-maintained order. Four long rows of neatly aligned desks ensured all students faced the prominent whiteboard at the front of the room. The classroom walls displayed student work pinned in neat rows, while all learning materials and books were stacked neatly on side benches or packed away in plastic containers. Between the board and the front row of desks was a low table upon which sat a single set of kitchen scales and a plate of shrivelled fruit. As students entered the room they were instructed to find their seat, sit quietly, and to place their books neatly on the desk in front of them.

Lisa opened the lesson by reviewing the progress of their science investigation, reminding students that they had seen her cut various types of fruit into pieces, weigh them (she pointed to weights recorded in a table on the whiteboard) and place them on a tray so that they could be left outside in the sunshine. She thanked individual students who had undertaken the responsibility of collecting the tray at the end of each day and placing it outside each morning. During this introduction students answered specific questions posed by Lisa regarding what they had noticed about the fruit throughout the week.

Lisa continued the lesson by re-weighing each piece of shrivelled fruit. Students were chosen to read the scales, but were instructed to not touch the fruit or the scales. All hands eagerly went up for the chance to be chosen, and although this involved no hands-on, those who read the scales were clearly thrilled to contribute to the lesson in this manner. Lisa corrected errors in the scale readings, and recorded each weight in the appropriate column of the table on the whiteboard. Lisa assisted students to calculate the percentage water loss for each piece of fruit by dictating the calculator process to ensure all students obtained the correct answer as it was written on the board. She instructed students to copy the table into their science books and to write one or two sentences to explain which fruit had lost the greatest amount of water. Students were reminded to do this without talking. Throughout this lesson there was no class discussion, nor any indication that either the teacher, or the students understood the purpose of this project. Despite that, students were compliant and seemed to enjoy the lesson.

5.3.4 Understanding pedagogy

Lisa had an excellent understanding of the benefits, differences and similarities of various types of pedagogies, particularly in relation to the application of teacher- versus student-directed learning, and the importance of "student involvement", suggesting that "if they [students] own it

they have a different attitude towards it" (T:17/10). When discussing the hypothetical scenarios, she commented that:

> the first one is sort of teacher-focused…no student negotiation in it, whereas the second one's got some student involvement…they have power over it, and if they own it they have a different attitude towards it (T:17/10).

Lisa described the implementation of SSP at South Bay Primary as essentially "teacher-led" and not yet at the stage where "it's students making the decisions on what they're doing" (T:17/10). She commented however, that teachers at the school "certainly are getting out there and starting to get involved in it" and that "hopefully one day we'll get there" (T:17/10).

She also noted her personal desire to change her pedagogical approach, stating that "I'd love to be at [hypothetical scenario] number two…hopefully one day we'll get there" (T:17/10). Lisa's desire to implement a more socially-critical pedagogy stemmed from her observations of improved student engagement and learning during several special specific activities which incorporated a few non-transmissive pedagogical elements. She described the school "science and maths night", based on environmental themes, for which the students "decided what experiments and what activities they want[ed] to show their parents" (T:17/10). Lisa also considered a recent project in which students worked in multi-aged groups to paint an environmental mural at a local public site where "the kids are all in multi-aged groups to go on the excursion, instead of putting all the 5–6's together we split the grades, and the 5–6's are going with a prep' grade" (T:17/10).

Lisa explained that she had been most enthused by a recent lesson along the banks of the local river, during which students contributed to the organisation of the lesson by determining which parts of the river they wished to visit in order to answer some specific science questions. She found the benefits of combining student decision-making with the outdoor environment and hands-on learning to be really "inspiring as a teacher because they [students] were so into it" and led her to the conclusion that the real world is in fact the "ideal classroom", and that school education must include opportunities to "to go beyond your four walls" (T:17/10).

Lisa commented that despite the success of these special activities, the school implementation of SSP had essentially excluded students from the larger projects. Although she believed that the creation of a frog pond might have been in response to student interest, most things were not. She stated that, for example "I don't really know where the veggie garden came from" as it "just seemed to appear one day" and was therefore most likely a project undertaken by parents and/or the principal: "I think it might have been principal-led, or higher staff, or something like that" (T:17/10). Lisa attributed this fragmented approach to the SSP and the slow up-take of more socially-critical pedagogies as a reflection of the fact that the school community

encompassed many "different people", some of whom "are more passionate about it [SSP changes] than others" (T:17/10):

> you've got different people who are more passionate about it that others, so they'll make sure they're doing it, whereas others just…it doesn't matter now…sort of thing. But ideally it would be good to see it all happening that way [socially-critical pedagogy], but I don't think that any time soon it will be (T:17/10).

5.3.5 Impediments to socially-critical pedagogy

Lisa identified teaching space as the most significant impediment to more fully embracing pedagogical changes inspired by SSP. Lisa considered the lack of a suitable "area where you could work outdoors" as particularly limiting, as she did not feel that she could ask students to sit "outside for an hour and a half under the direct sun" (T:17/10). She looked forward to the completion of new school buildings, designed with environmental ideals in mind, and in which "every classroom has access straight out into outdoor learning areas" (T:17/10).

Lisa suggested that the implementation of more socially-critical education required a different style of school building in which it is easy to move students between different types of areas without "constantly moving rooms around" or "moving furniture around to accommodate" opportunities for shared learning through interaction between classes (T:17/10). Lisa was obviously proud of the fact that the soon to be built school had been designed with environmental ideals in mind, and indicated that the structure of the new school would definitely assist with the implementation of SSP. However, Lisa also admitted that while she might complain about a lack of time or physical resources, these were "really just excuses" and that her work would benefit more from "just re-organising the way things are structured or getting rid of things that aren't needed" (T:17/10).

5.4 KAREN

Karen had been teaching for twenty-six years, the previous thirteen at East Valley Primary. As an information and communication technology (ICT) educational specialist, Karen was responsible for network administration and ICT education across all grades. Three years prior to this research a shortage of classrooms at East Valley Primary School forced Karen to look elsewhere for an opportunity to develop an ICT teaching facility. She assisted the school to negotiate an agreement for the use of a vacant training room within the grounds of the neighbouring East Valley Nature Park (EVNP). Initially, small groups of students attended for just a few classes each term for ICT lessons. Since then, and in collaboration with EVNP staff, Karen had developed an environmental multi-literacy program which contributed to the school's implementation of the SSP. Each year, every class attended EVNP for at least two one-week

periods. Normal classes were suspended during these weeks as all learning activities were undertaken at EVNP.

Prior to implementing SSP at EVNP, Karen had taught only ICT. She indicated that implementing SSP had required much learning as she had never before been involved in teaching environmental education.

East Valley Primary was a coeducational government school which catered for over 600 students. It was located approximately 60 kilometres from Melbourne, in a semi-rural region with rapidly developing residential zones. The majority of the 13 000 people living in East Valley were technicians and trades workers who commuted ten kilometres to a major industrial and manufacturing centre. In addition to EVNP, the school was within walking distance of a range of urban, rural and natural features which included natural bushlands and waterways. Coastal landscapes and a state park were only a short drive from the school.

The school aimed to ensure that all students felt supported and therefore capable of succeeding at whatever they most desired to do. Learning activities were designed to build upon students' curiosity about the world, and to foster a caring attitude towards others and the environment.

5.4.1 Implementing SSP

East Valley Primary began to implement SSP at the start of the 2006 school year. Issues arising from the implementation process were highlighted by comments from all four of the teachers (Karen, Anita, Robyn and Julia) interviewed during this research. All agreed that SSP implementation was directed by their principal (who did not wish to participate in this research). Julia stated that SSP was used as a vehicle for change, as the principal "wanted to point us [teachers] into a direction" because "we were floundering" (T:26/10). That direction, according to Anita, incorporated widespread pedagogical change through the establishment of "inquiry-based learning" (T:9/11). Anita noted that teaching and learning at East Valley Primary had been "very teacher-driven" and "very content-based" with little consideration of student interests or learning styles (T:9/11), and that her principal expected teachers to begin to incorporate thinking skills, and interpersonal and intrapersonal dimensions from the new VELS curriculum into their classroom practice. Anita commented that all teachers willing to attempt pedagogical change were strongly supported by her principal, but that this had created a divided workforce. She described an unpleasant work environment in which many of her colleagues were openly dismissive of alternative practices and strongly resistant to change. Robyn also found implementing SSP highly stressful due to the lack of peer support. She valued the strong support of her principal but noted that she was unable to engage with other early years teachers who had refused to embrace the educational change process facilitated by SSP. In such an environment, Robyn did not believe that SSP could be sustained. Only teachers most supportive of SSP ideals participated in professional development sessions held at both CERES and within the school.

Despite the lack of peer support for her work at EVNP, Karen noted that she had significant support for the program from parents. Even though students working at EVNP were not shielded from all aspects of the real world environment, including, for example, the death of animals that they had perhaps raised from birth, and that students often returned home with muddy or torn clothes, and with scratches and insect bites from their outdoor activities, parents respected the high level of engagement and learning offered by the EVNP experience. There was significant community support for Karen's work, particularly as a result of a significant decrease in vandalism in the park since the beginning of the program.

5.4.2 Understanding SSP

Like her principal, Karen viewed SSP foremost as a teacher education program. She believed that SSP focussed on "teaching teachers to empower children to understand their environment", so that teachers could assist students "to learn about their environment, to have respect for their environment, and to actually act on that, and therefore, in the long term make changes to the world—starting with their world" (T:30/10). This appealed to Karen's strong desire to make "a difference", and underpinned her motivation for teaching, which she described as "trying to teach the word respect…respect for themselves, respect for the environment…if I can impart that to children…then I have made a difference" (T:30/10).

Karen believed that in order for students to feel respect for another species, they must first "understand that species", and that this understanding could only be achieved through an authentic learning context. She believed that it is only after the development of this understanding, and therefore respect, that learning could progress beyond the most simplistic level of reciting facts to become self-questioning of attitudes, beliefs and behaviours. In facilitating this, Karen acknowledged the influence of her own learning from nature—"I've actually seen how they [animals] work as a team, and that we can learn from them" (T:30/10)—as the motivation for developing a truly cooperative and collaborative relationship with the community of people at EVNP.

5.4.3 SSP in practice

My visit to Karen's classroom corresponded with the first day of a one week visit by grade 3 students. Superficially, Karen's classroom seemed like any ICT learning space incorporating a bank of computers and student chairs. However, there were no bells or set times for breaks at EVNP. Students were expected to work cooperatively and manage their time not only to complete their tasks, but also to ensure they were present for specific activities, such as guest speakers. Students chose when to eat or rest, according to the demands of activities in which they were involved. Furthermore, due to the lack of facilities at EVNP, students were required to prepare their own lunch and to clean-up when finished. The grade 3 students accepted these responsibilities, and I saw no evidence of student misbehaviour or the necessity for a more rigid routine.

During my visit students undertook a short computer lesson designed to develop their proficiency with a new multimedia program so that they could create a visual diary of their work with one animal at the park. Karen showed an example of a completed diary, and then provided a step-by-step guide to demonstrate the basic operation of the program. Although some students carefully followed Karen's instructions, others simply explored the program's capabilities, listening in for the occasional tip, or asking direct questions as required.

During the afternoon, students were introduced to an "expert" visitor, the local "bee man" (T:30/10). Karen organised this visit due to recent media reports, noticed by students, concerning the plight of bees due to the lack of nectar in the current drought. She noted that visits by community people provided valuable educational opportunities, as "the children actually get the message not just from a teacher but from other people…it is really powerful…[when a message comes] from more people than just the teacher" (T:30/10). The visitor brought with him important components of a beehive: a set of beekeeper's clothing and tools; several types of bees in hand-held perspex cubes; and various materials including bee's wax and pollen. Students were encouraged to look, touch and ask questions. It was this latter aspect of the lesson which highlighted the benefits of Karen's pedagogy. The quality of the students' questions indicated significant critical thinking, and reflected learning from previous experiences at EVNP. For example, students queried the possibility that the length of the usual life cycle of bees might change in response to environmental change, as had occurred with some of the animals they cared for and studied at EVNP.

While attending the park, students were responsible for the daily care of various indigenous animals. In addition, students assisted rangers and researchers with special activities, such as conducting biological surveys, or assisting with the artificial insemination breeding program for endangered birds. These experiences successfully and deeply engaged students. Many students brought their parents[12] to the EVNP after school and on weekends, and they had been observed explaining aspects of the endangered species breeding program to strangers, and asking visitors to pick-up their rubbish. Students had also raised funds to assist various projects at the EVNP. For example, Karen described student interest in a pond re-development project for the Musk Duck breeding program: the "junior school council got together…they wanted [their fund raising proceeds] to go to the Musk Duck so they could breed", they thought that it was "really, really important…that these ducks get together to breed" (T:30/10). It was evident that student contributions had become an integral part of the daily routine and special projects of the EVNP. In response to the high level of student interest and involvement, a weekly postal service between the school and the EVNP enabled students to correspond with rangers, not only to stay informed about aspects of EVNP in which they had developed a personal interest, but to seek answers to questions for projects undertaken in other classes.

[12] The East Valley Nature Park (EVNP; pseudonym) is public property and receives many visitors on weekends.

5.4.4 Understanding pedagogy

Although all teachers were encouraged to attend the EVNP with their students, they rarely attended more than once. I observed the grade 3 teacher who visited Karen's classroom for the first time. This teacher was openly uncomfortable with the relative lack of structure, both in terms of the classroom management, and the degree of freedom given to students to move around the EVNP as they completed their tasks. Karen believed that most of the classroom teachers found their experience at EVNP to be "extremely threatening" (T:30/10), and often formally complained to their principal about the lack of rules, flexible lesson times and inconsistent teacher supervision. She did not think that the majority of teachers understood that by encouraging "children to work to their own time…this doesn't seem like school work…it's actually fun and they want to stay" (T:30/10).

Similarly, learning at the EVNP was not easily described in terms of traditional "tick-the-box" curriculum outcomes. Karen had found this type of education difficult to justify, particularly in relation to assessment. She said that others did not understand that "this program is not meant to be an end in itself, it's meant to be a springboard of changing attitudes for children to take back to East Valley Primary School" (T:30/10). She admitted that "I don't know what I can truly measure here…maybe…the measurement should be back there, of children and their attitudes…and their behaviours" (T:30/10).

Karen had a very specific idea of what constituted effective and worthwhile education. She indicated that the most essential factor in the development of an effective teaching–learning environment was the degree to which students were able to direct their learning. She commented that traditional "teacher-controlled" transmissive pedagogy was "just simply not as powerful as coming from the children" and "I don't like this total control" (T:30/10). She described teacher-directed education as "just superfluous, it's just ridiculous to try and teach that way…it has no meaning, it has no meaning to the teacher because they're doing it to please somebody who's written this curriculum…therefore it's not going to have any meaning…to the child" (T:30/10):

> I've sat in too many meetings over the years where people are designing curriculum…so that it fits into 2.3, ahh okay yes we've done that now let's cross it off…let's move on to the next section, right, now 2.7…I guess it's, to me, just superfluous, it's just ridiculous to try and teach that way…it has no meaning, it has no meaning to the teacher because they're doing it to please somebody who's written this curriculum…therefore it's not going to have any meaning…to the child (T:30/10).

In comparison however, Karen supported socially-critical pedagogies for their ability to provide a more holistic approach to learning, not only for students but also for teachers. Her ability to determine the basic learning direction provided a degree of motivation and job satisfaction, and

addressed all major educational goals without a prescriptive 'tick-the-box' approach. She strongly believed that any effective educational journey began with ideas, interests and needs which "come from the students…ground swell, there's nothing so powerful as ground swell" (T:30/10). The importance of student "ground swell" was central to Karen's curriculum planning. For example, she had recently obtained materials for a worm farm as an SSP initiative, but had not yet begun construction as there had been little student interest. Karen stated that "I'm showing the kids where it is, and we have a little bit of a talk about it" but it would not go ahead until "a group who are really keen and really interested" wanted to take on the project (T:30/10). This exemplified Karen's "preferred…child-centred and child-directed" socially-critical approach in which learning was a "negotiated" process (T:30/10). She noted that she provided "a fair degree of freedom" and "choice" as "I don't expect children to all have a high level of ownership for everything they do, that's just ridiculous, (T:30/10). Similarly, Karen encouraged students to "direct their learning" journey within all of the experiences and opportunities available at EVNP. She explained that:

> some children will go off on a total different tangent right, and I find every week, of every group that come here, we go in a different [direction]…even though we have…components that we will look at for the week, we all end up going in a different way (T:30/10).

This type of authentic learning at EVNP was exemplified by students' experiences undertaking biological surveys with an aquatic researcher. Karen described instances in which the students:

> all end up in waders out in the water…some will come back and want to really go on with the microscope…others won't be interested, they'll want to come back and they'll take cameras and they'll want to do a movie about it…others will just want to work with photographs…others might…create an animation in macromedia…how they come back from that is really a personal thing…It's up to the children…where they go with the information that they've been given…if they have done a certain topic, if they want to then go back and find the ranger, they just go round the office knock on the door, excuse me, got a minute, and this happens all the time (T:30/10).

5.4.5 Impediments to socially-critical pedagogy

Karen believed that the most difficult aspect of her role in SSP was the organisation and time it took to establish community involvement in the educational process. She had found that:

> in actual fact you've got to drag people in…in a lovely world these people would come knocking on your door and say 'I have these wonderful skills and if you need me, I'm available'…but the world doesn't work that way, I find we have to go and seek them out (T:30/10).

Karen stated, for example, that "it's taken me two years to get somebody to do some indigenous stuff, two years…contacting co-operatives, going round in circles trying to get help" (T:30/10). However, she saw these challenges as more than just her role as a teacher, but a way of approaching life, as "you really have got to work on it…if you're going to sit around in life expecting it's going to come on your doorstep it probably just won't happen" (T:30/10).

5.5 ELIZABETH

Elizabeth had been a generalist primary school teacher for thirty years, the previous eight of which had been at Mountain Primary. During this research she taught grade 3 students as well as coordinating yard duty responsibilities, the delivery of language other than English (LOTE), and SSP implementation throughout the school. Elizabeth stated that she had previously taught environmental education only as "part of general curriculum as needed" (T:14/11), and had often designed LOTE programs to promote environmental activities in the school.

Mountain Primary was a coeducational government school which catered for almost 550 students. The school was located approximately 500 kilometres from Melbourne in a residential zone of a large, multicultural provincial centre which had a population of almost 45 000. This centre provided a variety of food processing facilities in support of nearby agricultural activities. The effects of an extended drought however, had led to significant unemployment in both the agricultural and processing sectors of the community.

Mountain Primary incorporated many modern buildings, designed to make use of spacious school grounds by ensuring that classrooms had direct access to shaded, outdoor learning areas. Despite severe drought, the school had been able to maintain a variety of native and cottage-style gardens, as well as an award winning kitchen garden. A variety of public amenities, including a small community shopping centre, municipal playgrounds and sporting facilities, and a variety of natural landscapes including a river, natural forest, and a large flora and fauna reserve were located within walking distance of the school.

Mountain Primary School's vision was to prepare students for the future. The school embraced the idea that the best way to assist students to acquire the knowledge they needed for the future, was to create a learning environment which incorporated a wide range of supportive partnerships between teachers, students and their families, and the local community.

5.5.1 Implementing SSP

Mountain Primary School achieved SSP five-star accreditation two years prior to this research. At the time of my visit, neither the principal (pseudonym Mary), who had been appointed one year earlier, nor the majority of staff were aware of the program or its current status within the school.

Implementation of SSP had been instigated by the previous principal, who, according to Elizabeth, had a personal interest in environmental issues. Elizabeth's involvement with SSP

was neither voluntary nor enjoyable, and she was adamant that she "wouldn't have chosen to" participate as it was such "a huge task" (T:14/11). She noted that although she had participated in professional development sessions held by CERES at the school, she noted that "I applied to go to one at the zoo, and I was going to take a workshop, a full workshop but then various things arrived at the school…it would've just been too hard to go there" (T:14/11).

5.5.2 Understanding SSP

Elizabeth viewed SSP to be "not just a school curriculum" (T:14/11). She believed that while it "starts in the classroom with education" (T:14/11), "it's just not a 9–4 concept, it's a 24-hour concept" (T:14/11). She stated that "I see it [SSP ideals] as moving up throughout the school, with [students] having bigger jobs, being more aware [for example], start off in the classroom with them [students] being more aware of their playground and then the bigger playground" (T:14/11). She described SSP as "a community…outreaching program" (T:14/11), as students were encouraged to take their new understandings "back to the family" (T:14/11), and Mountain Primary had become a working model for how a school could engage with environmental sustainability. Elizabeth explained that when implementing SSP:

> I want them [students] to have a, a core understanding of the importance of whatever that aspect [learning topic] is, but I also want them to be able to repeat and teach someone else about it, because it's not until you can tell or teach or impart that knowledge that you actually know it yourself, and that you know you know it (T:14/11).

5.5.3 SSP in practice

Elizabeth described the implementation of SSP at Mountain Primary as the way in which environmental education was addressed through the organisation of waste management and recycling, and water and energy saving activities rather than through classroom teaching or student-directed action or activities, stating that "logistically it's full on" (T:14/11). The rubbish collection routine was a good example of SSP implementation at the school:

> on a daily basis there are the bins to put out, collect in…weekly bins to put out, collect in, fortnightly nineteen recycle bins to collect and put out…re-name them, because one thing I did was put big names on all of the bins and they constantly get taken off, so when the recycle bin has lost its name then I have six kids in my grade saying 'Oh where does that one go?' " (T:14/11).

Elizabeth resented the effort and time this routine took, explaining that "to physically go and get all the recycle bins, line them up, and walk them out to the front of the school (because the kids can't do it unsupervised) takes up twenty minutes minimum" (T:14/11). Only Elizabeth's class undertook the responsibility for this routine, as Elizabeth felt that "it would be horrific to have

various classes do it" because "it has to be well organised otherwise it would really fall in a heap very quickly" (T:14/11). She believed that:

> if you had one person looking after junior bins and one person looking after middle school bins and likewise for the senior school you'd still have to have someone overseeing it, and if you happen to have two of those supervising teachers away on one day, then you'd have to…go through the explanations with CRTs [casual relief teachers], and that would be horrific (T:14/11).

Elizabeth was proud that the time and effort she invested in establishing and maintaining the waste management system had greatly reduced the volume of rubbish generated in the school. She attributed this success to the reward system she introduced with both "individual acknowledgement and class acknowledgement" (T:14/11). She explained that each week "every child who has a waste free lunch" went into a draw for the "lucky lunchtime lotto" prize, while the "golden wheelie bin" was awarded to the class with "the lowest amount of waste" (T:14/11).

Despite the apparent success of the waste management system, Elizabeth was frustrated that the classroom award was usually won by her own class, and that continued improvement from the rest of the school was not forthcoming. For example, although grade 3 students had observed that many bins were only half full and suggested that fewer bins be used, Elizabeth had resisted as a general lack of student initiative meant that even the smallest changes required "a bit more education…well before it happened [so] all the classes knew why it was happening and what was happening" (T:14/11).

Elizabeth was unsure of the status of SSP in the school beyond waste management, as the accreditation process had been accomplished through specific special projects which ran for a limited time. For example, she remembered that during the

> year before last…we had a fairly big energy-wise education program, and we had an energy monitor for each room, and that person was in charge of turning off all the switches each night. This year we haven't to my knowledge. I don't think we've had any special focuses on energy (T:14/11).

Elizabeth believed that education regarding the sustainable use of water was probably being undertaken as "we all bring water education into our environmental awareness, because of our location, and so I would imagine that all kids here are fairly water-wise as a matter of course" (T:14/11). She also referred to the role of the kitchen garden for providing water education, as the kitchen garden manager (pseudonym Stephanie) had "done a lot of…research into…some of the sprayers coming into the kitchen garden" and that Stephanie "imparts that knowledge to the

kids" and "because so many kids use the kitchen garden it's sort of a natural filtering of information" (T:14/11).

During my visit to Mountain Primary I spent several hours in the kitchen garden with Elizabeth's grade 3 students as they worked for Stephanie, the kitchen manager. Stephanie, a landscape design expert, had designed and constructed the garden, and continued to maintain the garden for the school. The garden was protected by a high wire fence and locked gate so that students could only enter the garden when Stephanie was present. Stephanie allocated tasks to the grade 3 students as they arrived, in groups of six for half-hour long garden maintenance sessions, and closely monitored their progress. Tasks included weeding and transplanting of seedlings that Stephanie had propagated. Stephanie explained that she tried to maintain a very seasonal approach to the activities she gave the grade 3 students, in order to assist them to develop a feel for the changes and cyclic nature of growth. Most students worked in a matter-of-fact manner, appreciative that garden maintenance seemed less like the lesson that they had come from, but with seemingly little real enthusiasm for the task at hand.

Stephanie noted that she developed a good relationship with the grade 3 students as they worked in the garden each week, and that this had helped to reduce vandalism as students did not wish to hurt her feelings. She also noted that she was most careful to shield students from the more unpleasant realities of life that the kitchen garden might expose, such as the death of one of the chooks or an injured bird.

While grade 3 students were working in the garden, grade 5 students arrived in order to collect samples of different types of leaves for making pencil rubbings in order to describe different leaf structures, and a Prep class teacher used the garden for a measurement activity in which students used icy pole sticks to measure objects of their choice. This teacher stated that they had no knowledge of SSP but that the garden was a convenient and pleasant space for outdoor activities. At no time was there any interaction between the grade 3 students and those from other classes.

5.5.4 Understanding pedagogy

Elizabeth's approach to teaching was founded on a strong belief of the appropriate manner in which teachers and students should interact, and of what constitutes an educational context. Elizabeth strongly preferred a school-based, well-structured and teacher-directed approach to learning. She believed that it was important to follow a "logical and progressive approach" in order to best take "into account the different learning styles of students" and provide a variety ways of "assessing students' learning" (T:14/11). When designing learning units, Elizabeth considered it important to "keep the activities in school where the actual task is going to be" (T:14/11). For example, if learning about native plants, she believed that it would not be beneficial to take students to a native forest "because they haven't got a forest at school and they're never going to" (T:14/11).

However, she did consider opportunities for "hands on and working with a partner" to be a beneficial "way of drawing out and pushing out and maximizing" student understanding while maintaining student "engagement" (T:14/11). She believed this to be particularly relevant at Mountain Primary, as the "low socio-economic" status of many of her students meant that they needed a firm push to move beyond a superficial interest or what Elizabeth referred to as a "I like doing that" attitude (T:14/11).

This led Elizabeth to use knowledge-sharing activities as a way in which to develop "core understanding" and confidence in her students (T:14/11). She provided opportunities for students "to repeat and teach someone else about" concepts they were learning, in the belief that "it's not until you can tell or teach or impart that knowledge that you actually know it yourself…and that you know you know it" (T:14/11). This was also Elizabeth's understanding of the role of SSP previously described. The "imparting of knowledge and communication" between students during knowledge-sharing activities enabled Elizabeth to judge "the extent of the learning and the extent of the success" of her teaching. Elizabeth found that such opportunities depended not only on the willingness of teachers to work together, but practical issues such as the location of classrooms, stating that "if you've got a room that's fairly close by" and "it's quick and easy to get to that room, you can do it" (T:14/11).

When asked to consider socially-critical pedagogies, Elizabeth agreed that they seemed to address the "interpersonal and interrelated curriculum" requirements of VELS, particularly in terms of opportunities for students to design their "own projects" and assess "their own personal development". However, she believed that although such pedagogies "would be very easily managed in the secondary [school] surroundings" where they "would fit in very well with the sorts of subjects they do" (T:14/11) they were most inappropriate for primary students. Elizabeth considered that socially-critical pedagogies would not only fail to engage "most of the students for most of the time" (T:14/11), it would not be possible to "have primary schools going out into the community on a regular" basis (T:14/11). She explained that "interaction with the community" at Mountain Primary occurred only during special events, such as an impending mini-fete, during which the community could enter the school grounds in order to purchase items from the kitchen garden (T:14/11).

5.5.5 Impediments to socially-critical pedagogy

Elizabeth considered the lack of "resources" and limited "funding" to be the most critical limiting factors to her teaching. She believed that the lack of specific teaching resources, such as science equipment, restricted the types of learning activities that could be offered by the school. She indicated that access to resources and expertise outside the school was limited by the need to minimise student costs when organising excursions. She believed that with extra funding "we could take them [students] to CERES, the Collingwood Children's Farm, Botanical Gardens in Melbourne, there's any number of places you could go, but, I'm guessing, [it would

cost] probably 600 to 700 dollars for a bus" (T:14/11). She also commented that excursions needed to be organised at least "twelve months ahead" of time, stating that "we're doing budgets for the whole of next year now…so we really have to decide now" (T:14/11). She noted that due to the low student fees, each student could attend only two excursions each year, and that there was always significant debate amongst teachers as to where each of these should be. Despite this, Elizabeth was confident that these short falls did not significantly influence her classroom pedagogy, and in no way inhibited the "sharing of information and sharing of learning, and designing student-centred classroom tasks" (T:14/11). Elizabeth compared her personal perspective on school resources to the notion of "sustainability in environmental education" which supported the idea that "you use well the resources you've got, not go out and pluck new resources" (T:14/11).

5.6 CATHY

Cathy had been a generalist primary school teacher for thirty years, the previous eleven of which had been at Sirius College. She taught grade 4, and was both the middle school and SSP coordinator. Despite extensive experience teaching all aspects of primary school curriculum, including science, she described her previous experience in environmental education as "None!" stating that "I'd do the odd unit here and there, always have…but this [SSP] is a totally different way of looking at it" (T:22/11).

Sirius College was a large independent school catering for both primary and secondary students across several campuses. Cathy worked at a coeducational primary education campus which catered for approximately 500 students. The campus was situated approximately 20 km from Melbourne, in a residential middle class suburb with a local population of over 20 000. The campus had been designed to fit in with its natural bush setting. The grounds were extremely well-maintained, and incorporated both unstructured open spaces and well-equipped play grounds interspersed with native gardens and untouched native bush. The campus was within walking distance of a range of urban and natural landscapes including a busy shopping district, a parkland reserve and a local creek.

Cathy's school embraced the notion that pastoral care was central to the development of a school community which most effectively supported all students to do their best. This vision was not limited to students, and was exemplified by Cathy's description of her work environment: "we had a head of school that was fairly progressive in that she believed that [teachers] could try new things" (T:22/11). This attitude was "part of the [school] vision" which encouraged both teachers and students to "have a go" (T:22/11). Cathy explained that teachers at Sirius College had "always been encouraged and given great opportunities to do PD [professional development]" (T:22/11). Teachers understood that if they "came up with something…if it [was] reasonable [they could] have a go at it" (T:22/11). Furthermore, it was

considered “okay” for a teacher’s idea to “fail” because undoubtedly they would have “learnt something out of it” (T:22/11).

5.6.1 SSP implementation

Sirius College achieved their SSP five-star accreditation award during 2005, one year prior to this research. Cathy attributed “part of our success” in implementing SSP so effectively to the inclusive way in which the program was developed throughout the school, stating that “everyone supported it really well” and most importantly, “everybody had a hand in it”, such that “even though it’s been a lot of work for the person who was in charge of the enviro[ment] program, everybody’s been there to back them up” (T:22/11).

Cathy noted that this level of support reflected the fact that both the teachers and the school “management team…have always been…interested in developing a program [which was] environmentally…focused” as “we have a beautiful [bush] environment” at the campus. This made the decision to implement the SSP easy, as “the school as a whole…just thought that it was something that we really needed to do” (T:22/11). Cathy believed that the SSP focus on providing new perspectives for “looking at our natural resources and seeing ways in which we can use them better and make less of an impact on our environment” provided a way in which to develop a unified approach across all levels of the structural hierarchy of the school (T:22/11).

The SSP implementation process at Sirius College began with professional development sessions which aimed to raise teachers’ awareness of current environmental concerns and therefore highlight the role of such a program. Teachers explored human–environment relationships by calculating their own eco-footprint. Cathy reported that this activity:

> had a huge impact on the staff as a whole and I think that has been the secret to getting to where we have so quickly…everybody…has seen the benefit of such a program…I think it made a huge impact when we did the…eco-footprint on each of the staff members (T:22/11).

Cathy explained that this had been a very important personal motivator, and stated that it had changed “my life as a teacher…and my family life” (T:22/11) as:

> I look at the world in a totally different way…turning off lights and not having as long a shower…it really does make you so much more aware…it affects your whole life…I’m much more aware of environmental issues now than what I was before I did the program…I used to hear it, yes, I was concerned, but I wasn’t in the forefront of doing something with it. I am now, and I think that’s made a huge impact on my life personally (T:22/11).

Cathy indicated that Sirius College harnessed the momentum for change initiated during the professional development sessions by ensuring that teachers owned the ways in which their new

understandings were incorporated into their professional lives. She stated that all of the teachers contributed to a "big brainstorm about what our ideal school" could be, and that "it was from that that we…did our overall vision…our enviro[ment] policy" (T:22/11). This process provided opportunities for teachers to identify the most effective manner in which to implement SSP ideals throughout the school, and in Cathy's case, ways in which to most effectively involve her grade 4 students.

Every year at Sirius College, each class participated in a leadership skills program by undertaking a special responsibility. As plans for implementing SSP were being developed, Cathy had been concerned that her "year 4s were sort of left out there on a limb" as a worthwhile special responsibility had not yet been identified. During the brainstorming process Cathy identified SSP as a useful vehicle for developing aspects of leadership and social responsibility; assisting students in "being a more responsible person about their environment…thinking about the issues which are so important to society at the moment with water, and energy use" (T:22/11). This prompted her to focus on learning to "care for the environment" (T:22/11) through implementing SSP as an environmental leadership role for her class.

5.6.2 Understanding SSP

Cathy described SSP as a program which offered a great variety "of things that you can intertwine with your curriculum program" and which provided opportunities for participation which assisted students to "see that taking action is so important, and just little bits make such a big difference" (T:22/11). Cathy's understanding of the role of SSP was best represented by her comment that it provided students with opportunities to develop "not only an idea of basic knowledge about the world, but how they can make a difference" (T:22/11). She stressed that personal development, in terms of ability to take action, was an important aim of SSP, stating that:

> I think that they [students] can actually see that they can make a bit of a difference, even one single person can make a bit of a difference…It's that sort of awareness of things that they [students] can actually do themselves, and not only help their communities, but also help the environment (T:22/11).

She illustrated her understanding of SSP through examples of the ways in which she encouraged students to be actively involved in a wide variety of projects. For example, students worked with the local council on a tree planting program:

> We have our tree planting day where the year 4s actually organise it all. They supervise here on campus…pre-school up to year 2 to actually plant [indigenous plants] on campus…[grades] 3 to 6 actually work with…people from council and plant out on [a local] reserve (T:22/11).

Cathy also described the results of a local water testing project:

> we go out and do the Waterwatch[13]…test the water and…we found…I think it was phosphorous…in higher amounts than it should have been, so they [students] discussed…what should happen and so the…person who led this…from Waterwatch, actually rang up the EPA [Environment Protection Authority][14] and told them this (T:22/11).

Cathy described the SSP as "a huge success", not only in terms of student engagement, "because the children have really taken to it" (T:22/11), but also in terms of the behavioural changes and personal development she had observed. She stated that "it's amazing" that students will leave "the classroom for a specialist session and in the middle of winter, they'll turn off the lights on you" (T:22/11). She also noted that anecdotal evidence suggested that students had "introduced lots of the things that we've introduced at school at home. So it's [SSP] making an impact on the various home lives as well" (T:22/11).

5.6.3 SSP in practice

Cathy found it difficult to identify a single lesson to best portray her approach to implementing SSP. She considered her role as SSP coordinator most important for developing extra-curricula school-wide activities, as in her own classroom she incorporated sustainable school ideals in all classes. On the day I visited Cathy's class, she described her classroom as "vaguely organised chaos" (T:22/11), and she was right.

Well before entering the classroom I heard the sounds of student–student chatter and activity. Groups of students and the work in progress had spilled well beyond the classroom door, along the adjacent corridor and into nearby outdoor spaces. As I entered the room I faced a scene of disordered furniture, scattered writing materials and free roaming pets, around and within which groups of students were actively engaged. As I sat and watched however, it became clear that the apparent pandemonium was actually a dynamic learning space that students continuously modified to facilitate their requirements for interaction and learning.

Students were enthusiastically implementing a 'no rubbish' policy for lunches across the entire school—an SSP accreditation requirement introduced as an idea by Cathy, but designed and managed entirely by students. Students were assessing the effectiveness of their initial advertising campaign (which had incorporated the creation of the 'nude food dude' comical character) by collecting classroom rubbish bins, weighing, counting and classifying rubbish. Groups of students were working to present their findings in order to inform classes of their progress towards the nude food ideals. Students needed to determine how to best collect, represent, display and explain their data in a manner that portrayed their findings to other

[13] A community water quality monitoring network headed by the Australian Government Department of the Environment, Water, Heritage and the Arts.
[14] A statutory authority

classes. Cathy supported student collaboration and peer learning by acting as a sounding board and advisor, and providing direct instruction only when necessary. At the end of the session students came together for a class discussion. Cathy contributed only when necessary to model appropriate questions, ideas or responses, or to assist the process to continue. Student groups shared their findings, provided critical feedback to others, and were encouraged to accept feedback with a degree of critical consideration.

Cathy noted that many other SSP-related activities had been initiated by students. One student's request to participate in a bird nesting program resulted in students successfully applying for a grant and conducting research into birds' nesting needs. Cathy sought assistance from wildlife experts who led a field trip for students, and helped them to construct appropriate nesting boxes that were placed in trees around the school. Students continued to monitor the nests, collecting data that contributed to other literacy and mathematical projects. This was not the only time Cathy had sought assistance from people with specialised expertise. She described her experience of a program in which students designed and built a model vehicle powered by a hydrogen fuel cell. Students experimented with different materials and different designs in order to maximise the speed of their vehicle. Cathy invited a secondary high school teacher to assist her students to answer their own questions. This was so successful that the learning and engagement opportunities for students surpassed the possibilities of other activities and so Cathy extended the initial two week program to an entire term. She commented that this had "been an exciting journey" as students had taught her about the properties of a periodic chart and basic chemical concepts related to hydrogen fuel cell technology, and that learning from students in this manner is what "makes coming to school enjoyable" (T:22/11).

5.6.4 Understanding pedagogy

Cathy's classroom practices reflected the strong convictions she held regarding the educational validity and role of different pedagogies. She described traditional transmissive pedagogies in science as "too prescriptive" (T:22/11). She rejected the notion she identified in hypothetical scenario 3 that teachers must "maximise the chances of successful completion" of a curriculum activity, and referred to her own experience in giving students the space and freedom to learn from their own mistakes:

> I think one thing that we got out of that [hydrogen fuel cell project [15]] …was the mistakes that the kids made…I mean, yeah occasionally they were disappointed about it, but the learning that went on from the mistakes…to see the way that they attacked that and the testing and investigating that they did…I mean there are times when you want them to learn particular skills then you teach them that skill, but if it's just

[15] A project which required students to design, build and race a model vehicle powered by a kit hydrogen fuel cell motor.

> something that you want them to learn about a particular topic, I think they have to make those mistakes (T:22/11).

Cathy considered it important "to consult the kids about where they want to go" as "they come up with things that you may not have thought of and I think that that's what's exciting" (T:22/11). She detailed her need to embrace socially-critical pedagogies for their ability to create "exciting" opportunities in the following way:

> I'd stagnate if I had to do the same thing over and over again…I mean we have to be motivated to get the kids motivated…if we're not really excited about doing something, how can we make the kids excited about doing it, and I can't see that you can get excited about something that you've done twenty times before (T:22/11).

5.6.5 Impediments to socially-critical pedagogy

Cathy did acknowledge however, that implementing socially-critical or non-transmissive pedagogies is not always easy. She believed that during her "earlier days of teaching life" she may have felt the need for "a little more control" in the classroom than a socially-critical pedagogy provided. She understood that implementing socially-critical pedagogies required practice, but noted that "part of getting that experience" required teachers to accept that "there's lots to be learnt on your part [as the teacher] as well, you don't know everything" but that when "you throw yourself in there, you learn so much more" (T:22/11).

Cathy considered the "beauty" of the SSP to be that it "doesn't get mundane" and constantly challenged teachers as "there's something new all the time" (T:22/11). She illustrated this with the rhetorical question "We went through the initial part of setting up the sustainable schools program, we got our five stars, [but now] how do we keep going?" (T:22/11). In answer to this, Cathy identified the development of collaborative relationships with people and organisations outside the school to be most critical for the successful continuance of SSP. She believed that this requirement was the most difficult component of her work, and one which required a significant investment in "time":

> I think that's probably the biggest impact on what we do, not having that time to sit down…make our contacts…cruise on the web…time is definitely the killer…I just feel that things have changed, there are so many more demands on us now than what there were when I first started teaching…there's just so many things you have to cram into your day…your emotional problems with kids, and your emotional problems with parents…in a more perfect world I'd have more time (T:22/11).

5.7 SUPPORTING CASES

The cases of seven teachers (Andrew, Simon, Fran, Robyn, Anita, Julia and David) and two principals (Helen and Philip) are presented here as supporting cases. In conjunction with strategic cases, supporting cases exposed the plurality of ideologies and experiences to identify both the range and extremes of possibilities within similar educational contexts and classroom situations, and which contributed to the development of educational rhetoric–reality gaps (Flyvbjerg, 2004; Smith, 1995). Supporting cases provided valuable insights into the nature of educational rhetoric–reality gaps which corroborated ideas developed from strategic cases during my data analysis and interpretation. Brief descriptions of supporting cases are grouped according to the school at which the research participants worked.

5.8 EAST VALLEY PRIMARY

East Valley Primary was a coeducational government school which catered for over 600 students. It was located approximately 60 kilometres from Melbourne, in a semi-rural region with rapidly developing residential zones. Four teachers from this school participated in this research. Karen was introduced as a strategic case (Section 5.4). A more detailed description of East Valley Primary School and its community is also provided in Section 5.4. Anita, Robyn and Julia are introduced below.

5.8.1 Anita

Anita had been a generalist prep teacher at East Valley Primary since graduating three years prior to this study. Her participation in SSP reflected her principal's decision to implement "inquiry-based learning" alongside developing student understanding that "what we've got on earth is really limited" and that "the choices we make can impact on other people's choices" (T:9/11).

Anita strongly valued the teaching opportunities provided by SSP, noting that due to "being so bombarded by media" she would "feel guilty" if she did not teach sustainability concepts. She described the professional development sessions however, as "quite depressing at times" as they had caused her to question the ability of any one person to make a difference in either the classroom or the community. Anita had decided that implementing SSP with young students required getting the "balance right" in order to teach at "a level where it's meaningful, but at the same time…not something that's nightmarish" (T:9/11). She embraced this philosophy by assisting students to relate sustainability ideas to their own lives and their own actions. She focused on assisting students to begin

> thinking about the kinds of things they can do at home, the kinds of choices that their Mum or Dad might make about their lunch box…and whether or not you leave lights on…and even maybe some choices they make about the kinds of toys they might be interested in (T:9/11).

For Anita however, the most significant aspect of SSP was pedagogical change. She noted that teaching and learning at East Valley Primary had been "very teacher-driven" and "very content-based" with little consideration of student interests or learning styles (T:9/11), and that her principal expected teachers to begin to incorporate thinking skills, and interpersonal and intrapersonal dimensions from VELS into their classroom practice. Anita attributed her willingness to trial inquiry-style pedagogies to the strength of support from her principal. Such support was essential to counteract the negative effects of colleagues, many of whom were experienced teachers, who were openly dismissive of alternative practices and strongly resistant to change. Anita noted that this dissention eroded her confidence and created an unpleasant work environment. In light of this she nominated peer support as the most critical element in ensuring the success of any teacher's implementation of SSP ideals.

In more practical terms, Anita found the most difficult aspect of implementing a non-transmissive pedagogy to be providing space and legitimacy for student voices. She noted this was often difficult with very young students who are "still very much in that eager to please mode" (T:9/11) and still need to learn to be heard, learn how to make choices, and learn how to think more critically about the opportunities presented to them. As a result, she believed that, in practice, student choice needed to be limited in the earliest years of schooling.

5.8.2 Robyn

Robyn had been a generalist prep teacher at East Valley Primary since graduating three years prior to this research. She described SSP as "a government initiative" which aimed to facilitate behavioural change by "teaching children…how to save the environment" (T:9/11).

Robyn stated that the program had initially seemed overwhelming. She noted that professional development sessions outlining impending environmental crises had caused her to become "really worried about the world" (T:9/11). She was very proud however, that through her teaching, her young students had found ways to become more environmentally active than most teachers would believe. Parents had commented that students were initiating changes at home, and at school they automatically made decisions such as to "reuse the back of paper instead of…throwing it in the bin" (T:9/11).

Robyn shared a double classroom with Anita to facilitate team teaching. One combined lesson used the context of 'recycle, re-use, reduce' to improve student confidence in sharing ideas, questioning peers and teachers, and finding different ways to express their understandings through posters and models. Small groups of students rotated through a variety of activities based on science and environmental understandings established in earlier lessons. Students worked collaboratively and enthusiastically with both peers and teachers.

Robyn explained that she constantly aimed to link SSP ideals into other learning areas, and facilitated students putting these ideals into action. For example, her students wrote a letter to a local company who responded by donating worms so students could establish a worm

composting farm. Robyn hoped to develop her SSP teaching so that "the community is involved, and children are working with different year levels rather than just being confined to their own classroom" (T:9/11). She believed that "hands-on activities" were essential for maintaining student engagement, and that guest speakers showed students "new ways of getting information" (T:9/11). Robyn's described her pedagogical approach as "basically it's just teachers and children working together" (T:9/11).

Despite overwhelming evidence that her students were highly engaged and developing a range of complex understandings and social skills, Robyn found implementing SSP highly stressful due to the lack of peer support. She valued the strong support of her principal but noted that neither herself, nor Anita, engaged with other early years teachers who refused to embrace the educational change process facilitated by SSP. In addition, Robyn was concerned that SSP itself was not sustainable. She believed that it should have been implemented throughout the whole school, and integrated into the curriculum each year rather than timetabled as discrete biennial subjects. Robyn feared that the momentum for educational and behavioural change she had helped to build would diminish if not continuously supported.

5.8.3 Julia

Julia had been a generalist classroom teacher at East Valley Primary since graduating five years prior to this research. At the time of my visit she was teaching grade 1–2 for the first time, having previously taught grades 5–6. She was also responsible for the Junior School Council.

Julia referred to SSP as "an integrated unit" for "making kids aware" of the environment through developing a sustainable school. She stated that SSP was used as a vehicle for change, as the principal "wanted to point us into a direction" because "we were floundering" (T:26/10). Julia noted that teachers were "made" to feel part of the principal's plans by developing statements to focus student learning. She described the grade 1–2 statement, "the way resources are managed through reduce, reuse and recycle" as excellent for incorporating concepts young students could easily "relate to their personal lives" (T:26/10). In addition to specified learning outcomes, each statement could be augmented with concepts and topics identified by students—an "inquiry" approach identified by Julie's principal as an appropriate alternative to the well-established teacher-directed pedagogies.

Julia readily accepted that she was neither the sole expert, nor always the sole authority in the classroom. One lesson about energy, held at a neighbouring secondary school, exemplified collaborative student-led learning through multi-age student–student interaction. Students worked in small groups rotating through a series of practical and exploratory activities planned and supervised by year 9 students. Throughout the lesson all students were engaged in activity and associated conversation—there was a high degree of knowledge sharing and language development through student–student communication. Julia commented that this collaborative lesson provided access to equipment and the knowledge of a science teacher, filtered through

the grade 9 students, of a topic she was not confident to teach. While the grade 9 students were the 'experts' during the practical part of the lesson, the younger students readily accepted and enacted their 'expert' roles during subsequent classes, providing descriptions and explanations to both Julia and their peers.

Julia indicated that, through SSP, she had developed the understanding that content and pedagogy contributed equally to educational outcomes, and that pedagogical change did not necessarily require more time or significant curriculum change. Although she found the change to inquiry-based pedagogy personally demanding, she had observed that when her students chose "their own focus for study" and engaged in hands-on learning "rather than just sitting there passively" they did "learn more and respond better" (T:26/10). Julia suggested that her teaching would improve with additional physical resources and outdoor learning spaces.

5.9 OCEAN PRIMARY

Ocean Primary was a coeducational government school attended by 500 students. It was located on large grounds in a residential suburb approximately 30 kilometres from Melbourne, with a local population of about 6000. The school prided itself on facilitating the development of a broad range of teaching and learning strategies in order to accommodate the needs of all students, and had achieved their SSP five-star accreditation during 2005. David was the only teacher from Ocean Primary to participate in this research.

5.9.1 David

David had been a senior grade 3–4 teacher at Ocean Primary for "too many years". He was a staff mentor, and coordinated both Level 3 teaching and learning (VELS) and SSP. He had extensive experience in teaching environmental education through the core curricula of science and SOSE. He believed that SSP provided an opportunity for the school to become "environmentally responsible" for their bush setting, while addressing teachers' observations that students lacked self-sufficiency, and had difficulty determining appropriate behaviour in unfamiliar situations or difficult environments (T:24/11). He stated that the SSP was a vehicle through which to develop students' ability to contribute to society, in an active and responsible manner, as environmental learning is "not a subject, it's something we teach because we teach life" (T:24/11). He believed that SSP achieved this by broadening the notion of where and how learning occurs, identifying the school grounds and community spaces as "authentic learning platform[s]" from which shared experiences became authentic contexts for exploring curriculum outcomes in literacy and numeracy. This was a "personal incentive" for David, who felt that contextual learning "helped motivation in the classroom", and satisfied his desire to "leave the world a better place" by building "better pillars of society" (T:24/11).

David achieved an authentic integrated approach by incorporating students in the ongoing management of their environment. For example, his students were preparing a newsletter to

inform parents about the environmental status of a recently up-graded garden with seats and shady trees. Rubbish had been collected from the garden at various times on different days, categorised and weighed. Results were tabulated and graphed. Differences between collections were analysed and compared to earlier predictions and recorded observations of students' behaviours. David led a class discussion, in order to model how to use evidence to justify ideas, as suggestions for reducing the rubbish were developed. Students were encouraged to identify possible human–human and human–environment relationships to explain their data. The ideas developed during the class became the basis for the students' decision to report their findings and suggestions to the school council. Students were self-motivated, highly engaged, and clearly owned and directed their learning. This project exemplified David's belief that effective education teaches students how to question their knowledge, and should be measured by "behaviour change" facilitated by that new knowledge (T:24/11).

David attributed his success in implementing SSP to having "a lot of support" (T:24/11) and the opportunity to work with many passionate teachers. However, he believed that the process of change would not continue, nor would changes already accomplished be maintained, without constant effort from himself as the coordinator of the SSP.

5.10 SOUTH BAY PRIMARY

South Bay Primary was a small coeducational government school attended by 100 students. It was situated in a small, semi-rural region approximately 50 kilometres from Melbourne, with a population of about 375. The principal, Helen, and two teachers, David and Lisa, participated in this research. Lisa was introduced as a strategic case (Section 5.3). Helen and David provided many valuable insights into the implementation of SSP by Lisa at South Bay Primary, and this information has been incorporated into Lisa's strategic case, as has a more detailed description of South Bay Primary and the community it serves.

5.11 WEST QUAY PRIMARY

West Quay Primary was a small coeducational government school attended by 110 students. It was situated in a small rural community about 100 kilometres from Melbourne, with a local population of about 1000. A nearby manufacturing and industrial centre enabled families to seek work outside the town in order to supplement declining income from drought affected agricultural activities. Plans to up-grade the school grounds as part of SSP implementation had also been postponed due to the water shortage. The school aimed to support students on their journey to becoming active participants in society. The principal, Philip, and two teachers, Simon and Fran, participated in this research and are introduced below.

5.11.1 Philip

Philip, the principal of West Quay Primary, identified SSP implementation as a school "goal" for 2006 to accompany planned improvements to the school grounds. He indicated that the

overriding motivation for implementing the program was his passion for "connectedness with the community" (T:30/11), an essential foundation for developing student understanding of human–human and human–environment relationships. Philip planned to use SSP as a vehicle for improving the school operational practicalities to establish a working model of sustainable living. Philip outlined that this would not only be financially beneficial, but would also facilitate the production of environmentally and socially "responsible, ethical individuals" (T:30/11). However, he believed that achieving such educational outcomes also required improving student engagement through pedagogical change.

Philip stated that initially, most teachers "didn't want to be involved" (T:30/11) with SSP. He interpreted their response as disapproval of the "curriculum development" potential of SSP, related to their unwillingness to question the pervasive culture of belief he described as "I am the font of all knowledge and I spew forth" (T:30/11). He believed that entrenched transmissive teaching practices were supported by a routine of "plan[ning] to the n^{th} degree", such that teachers had become "extremely inflexible" and fearful of change, and had lost touch with the ultimate goals of education (T:30/11).

Philip stated that the early stages of implementing SSP had initiated a school wide change towards "a more child-centred curriculum" through the development of "inquiry approaches and integration of thinking curriculum" (T:30/11). Facilitating change had been a difficult process of "getting people on board" (T:30/11) and challenging long held attitudes and beliefs. Philip noted that he had needed "to lean on some people" and "encourage others" (T:30/11). Some teachers had been "late subscribers", participating only after observing the successful efforts of others, while others remained unwilling to trial new pedagogies.

Philip stated that the support of CERES facilitators had been instrumental in developing the motivation and momentum for change by providing opportunities for teachers to take ownership of the change process as "part of a learning community" (T:30/11). Despite achieving significant change however, Philip acknowledged that the gap between the rhetoric of SSP and teaching practices remained large. He strongly believed the development of new learning spaces within the school grounds would help to limit these rhetoric–reality gaps, although he conceded that these, including the planting of kitchen and native gardens, were on hold due to severe drought and associated water restrictions.

5.11.2 Simon

Simon had been teaching for six years, the last four of which had been at West Quay Primary as a science and ICT specialist (grades P–6). Simon was coordinating SSP implementation, and had overseen completion of the energy, water and waste audit modules.

Simon described SSP as engaging "schools in assessing" their operational sustainability (T:30/11). He was most skeptical that the program was worth the extra workload he had experienced in setting it up. He was also concerned that the program might contradict his

beliefs that "the needs of people" must be "weighed very carefully" against environmental action, and that exposing students to the enormity of global environmental issues could "make them really fearful" in the absence of positive ways in which they might act in response to such concerns.

Simon believed that SSP aimed to facilitate behavioural change by increasing student awareness of environmental topics, which he achieved by incorporating these topics into existing learning units. For example, he incorporated the concept of solar energy in a unit on the sun. This involved "giving the kids motors and solar panels…letting them wire them up and take them outside and watch the motors run" (T:30/11). He indicated that such content changes influenced his pedagogy in other ways, stating that "I certainly wouldn't have taken the kids on a walk to show them a house with solar panels on it if we weren't doing sustainability" (T:30/11).

However, Simon did not believe that students were capable of directing, negotiating, or even contributing to their learning in meaningful ways, stating "I tend to like more formal education" (T:30/11). Simon believed that a teacher's role was to "instill" appropriate knowledge, attitudes and behaviour, by identifying both the content and the learning process. He strongly supported outcome-oriented education with specific and measurable curriculum goals against which the validity of assessment activities could be judged. Simon appreciated the rigorous planning required for this pedagogical approach, stating that "I find it a little bit difficult when I can't put things in a box" (T:30/11). As such, Simon stated that he found the decision making for the open-ended SSP "a bit overwhelming" (T:30/11).

Simon's teacher-directed pedagogy was highlighted by a grade 4 ICT session during which students created a mini-movie about a sustainability issue. Students were expected to listen in silence and act in unison as specifically directed by Simon. Students were denied any opportunity to explore the software or engage in peer learning. All student questions were to be directed to Simon. Students seemed disengaged and regularly disobeyed instructions in ways that demonstrated a confidence with the software far beyond the level of instruction being offered.

Simon identified the benefits of SSP as monetary support for purchasing equipment "in the name of sustainability" and support from "professional knowledgeable passionate people". His future vision for SSP at West Quay Primary was the development of a shared "community and school garden" (T:30/11).

5.11.3 Fran

Fran had been a generalist grade 4–5 teacher for seven years, the last six of which had been at West Quay Primary. Fran's additional responsibilities included LOTE and OHS.

Fran acknowledged having "an interest in the environment", but her participation with SSP was "driven" by her principal (T:2/11). She believed that SSP represented collaborative, social

transformative education which aimed to develop people's understanding that society has "a responsibility to change the way we're currently operating for environmental reasons", and that such social transformation may be accomplished through "changes that won't necessarily mean that our lives are worse off" (T:2/11). She described SSP as "a whole school thing" to be "built into the curriculum" so that it is "part of your day with children" (T:2/11).

Fran believed that the most effective way to encourage students to adopt environmentally sustainable habits was to start with basic aspects of "waste and reducing, recycling and reusing" (T:2/11). Fran initiated a reward system to "slowly start changing the ethos" of the school (T:2/11). Her students audited the environmental actions of every class, awarding points for a reduction in resource use and effective rubbish recycling. Each week, one class became the custodian of the "environmental frog" trophy (T:2/11). Fran also planned lessons to enable students to take environmental ideas "into the community" (T:2/11). One lesson required students to answer a set of questions, designed by Fran to match factual information she had provided, about various famous geographical features. Students then designed a poster, using the geographical images provided, to illustrate an environmental message of their choice. Students completed the task with little understanding of purpose or engagement to produce posters with an environmental slogan surrounded by an ad hoc collection of images.

Fran felt very strongly that if students were to become active participants and effective decision makers in their future society, "they've got to have the guts to question" rather than "just swallowing everything they're told" (T:2/11). She believed these skills were best developed by SSP activities that offered "a realistic representation of the community" by incorporating multi-age collaboration in a variety of settings, thereby providing "a more worthwhile purpose" to learning (T:2/11).

Fran felt that introducing SSP throughout the school had been difficult. She noted that many teachers held the misconception that the program required excessive work, while others found the lack of a detailed curriculum "especially challenging" (T:2/11). She believed that any change required time, as when stretched for time, people understandably "fall back on something that worked for them before" (T:2/11). She was also cognisant that many teachers were poorly motivated because they did not share the environmental ideals of SSP.

5.12 SUMMARY

This chapter presented the stories through which I sought to answer the research questions. These stories, or cases, provided valuable insights into the "context-dependent knowledge and experience" of teachers attempting to implement SSP ideals through socially-critical pedagogy (Flyvbjerg, 2004, p.421). Four strategic cases (Lisa, Karen, Elizabeth and Cathy) were described in detail, as I identified these as providing the most holistic understandings essential for answering the research questions: what is the nature of an educational rhetoric–reality gap

and how can educational rhetoric–reality gaps be reduced? The supporting cases of seven teachers and two principals were also briefly described. These provided valuable insights into the nature of educational rhetoric–reality gaps which corroborated my analysis and interpretation of strategic cases. I present the findings of my analysis and interpretation of these stories in Chapter 6.

6 THE NATURE OF EDUCATIONAL RHETORIC–REALITY GAPS

6.1 INTRODUCTION

In order to answer the research question 'What is the nature of an educational rhetoric–reality gap?' it was essential to identify the nature of both the rhetoric and reality used to define a rhetoric–reality gap in the context of this research—the implementation of SSP. This chapter presents my analysis of the rhetoric used by the principals and teachers from several Victorian primary schools to explain their understanding of the educational and environmental goals of SSP. I describe the reality of the manner in which these teachers' attempted to achieve the goals they identified, and analyse the relationship between their rhetoric and reality. I identify which of the teachers' practices represent rhetoric–reality gaps, and identify the strategic cases[16]. Throughout the chapter, I use Giddens' (1984) ontology in-situ framework (see Section 3.14.2) to focus my analysis and discussion on the critical elements of the duality of agency and structure which underpinned the relationship between teachers' rhetoric and the reality of their practices. Specific elements which emerged from the data as significant in the development of educational rhetoric–reality gaps in the context of the implementation of SSP, including: permission and support; knowledge required to implement SSP; the need to implement a socially-critical pedagogy; and teacher experience, are also discussed.

6.2 RHETORIC

The analysis of rhetoric provided valuable insights into the ontological elements of agency and structure related to the development of rhetoric–reality gaps in the context of the implementation of SSP (Figure 6.1). These insights were gained through the analysis of rhetoric used by principals to describe their expectations of SSP and to justify their decision to implement SSP, and of rhetoric used by teachers to describe SSP and to justify their classroom practices. These analyses enabled me to compare the understandings of principals and teachers to the rhetoric of the educational aims and pedagogical guidelines (or structured sets) [17] contained within SSP documents (Chapter 2).

6.3 THE RHETORIC OF PRINCIPALS

Giddens' notion of the duality of structure and agency, represented in the ontology in-situ framework (Figure 6.1), suggested that teachers' practices both influence, and are influenced by, the structural elements of their educational work environment. In addition to the rules and

[16] Justification for, and detailed description of, the use of strategic and supporting cases, in line with recommendations by Flyvbjerg (2004), is provided in Chapter 4.
[17] Elements of Giddens' (1984) ontology in-situ framework are identified, where appropriate, in brackets throughout this chapter. Refer to Figure 6.1 and Chapter 3 for detailed discussion.

policies outlined in SSP documents, major structural elements of the work environments of the teachers arose from the role of principals as responsible for the decision to implement SSP. Understanding principals' motivations was therefore critical for understanding the manner in which they influenced SSP implementation, and the effect of their expectations on teacher practices in terms of the development of rhetoric–reality gaps. My analysis of the rhetoric of principals provided valuable insights into several of Giddens' (1979; 1984) structural elements: hierarchical management systems (structure); school educational aims (structured principles); established school processes (structural properties); and ideologies of different school groups (social systems of interaction) (Figure 6.1). I discuss these according to three main themes which emerged from the data: principals' understanding of the 'aims of SSP and the purposes of education', 'SSP as a vehicle for change', and 'understanding pedagogy'. Ideas revealed by my analysis of the rhetoric used by principals' are outlined in terms of 'principals and SSP'.

It is important to note here that only two principals, Philip (Section 5.11.1) and Helen (Section 5.3.1), agreed to formally participate in this research (see Section 6.6.1). Both Philip and Helen offered a range of ideas regarding their interpretation of the role of SSP in directing both learning and teaching within their schools. Conversations with principals from other schools, in addition to reports from teachers, indicated that ideas presented by Philip and Helen were broadly representative of principals' perspectives of SSP.

6.3.1 Aims of SSP and the purposes of education

Stevensen (1987; 2007a) argued that rhetoric–reality gaps in the practices of environmental education "should be expected given the traditional purposes and structures of schooling in western industrialized societies" (2007a. p.129). In light of this, it was important to consider the relationship between the decision to implement SSP in schools, and the principals' and teachers' understanding of the purposes of education.

The principals of schools were responsible for the decision to implement SSP. According to structuration, such decisions represented one effect of the hierarchical management system, a structural element, of schools which directly impacted on the work environments of the teachers. Principals indicated that their decision to implement SSP stemmed mainly from a desire to develop more-effective environmental education. They believed that such education should be future-orientated and focused towards influencing the dominant human–environment relationships of society. Helen, for example, described SSP as education which aimed to ensure that the natural environment, and the human life that it supports, will still be "here in 100 years" (P:21/11). Philip compared SSP goals to social responsibility. He referred to the responsibility of educational institutions to identify ways in which to actively address social and environmental concerns, in addition to their responsibility to "produce responsible, ethical individuals" (T:30/11). He stated that "I don't think people are as aware of the environment and

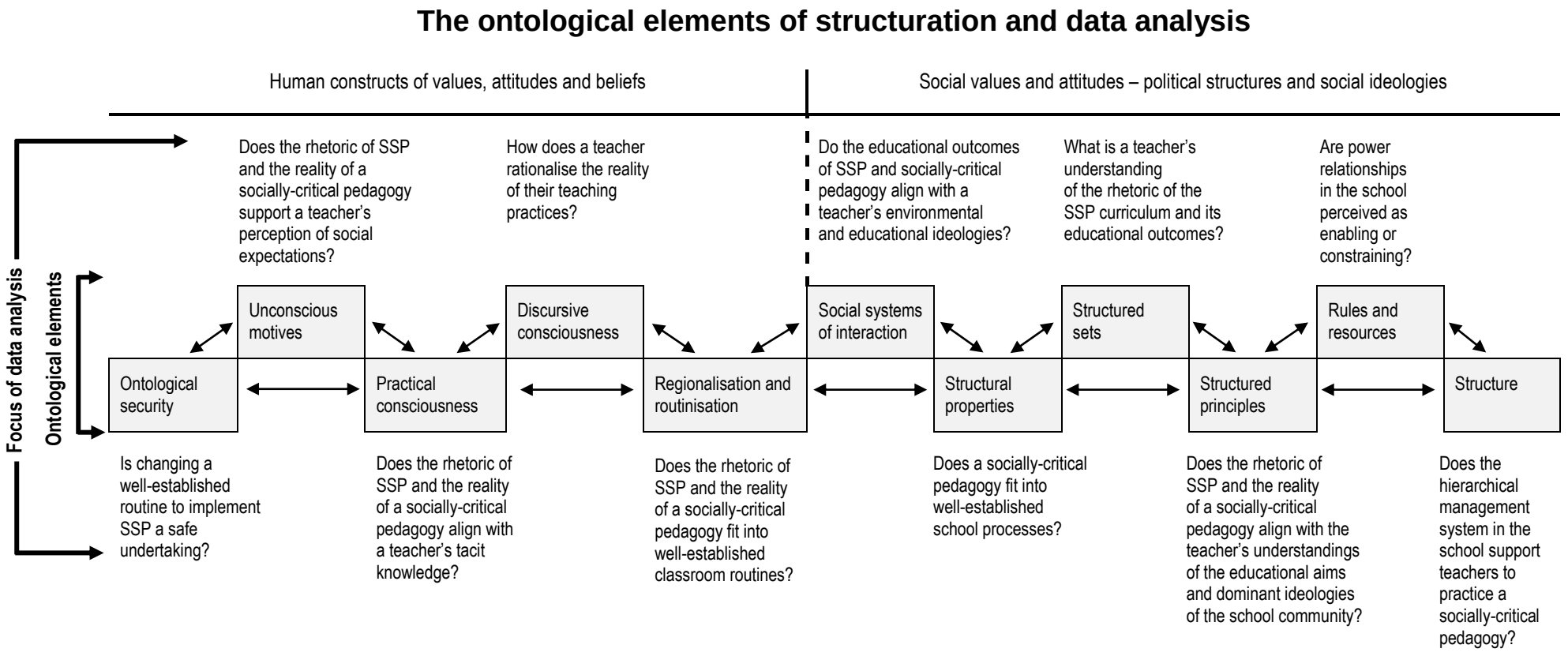


Figure 6.1 The ontological elements of structuration and data analysis (adapted from Giddens, 1984; Turner, 2003a, p.488).

their impact on the environment as they could be", and that "people just can't afford to ignore these kinds of things any more" (T:30/11). He viewed SSP as a "just cause" that "needs to be done", and from which society, not just his school, would reap "great benefits" (T:30/11). These comments reflected principals' practical consciousness (Figure 6.1). They indicated that these principals' believed that not only did society need to address certain environmental concerns, but that schools played a vital role in ensuring that this occurred. These principals' ideas of 'social responsibility' with respect to the effect of human behaviour on natural and social environments correlated well with the stated goals of SSP.

Teachers from other schools reported that similar ideas contributed to SSP being implemented, but that these were often justified in terms of the school's responsibility to be 'seen' to be caring for their 'own' natural environments (school grounds). In other words, their principals' discursive consciousness, or verbal justification (Figure 6.1) related the decision to implement SSP to the needs of the school, rather than the needs of society or the environment. Both Cathy (Section 5.6) and David (Section 5.9.1) indicated that the natural environments of their school grounds represented a physical resource which strongly influenced the decision to implement SSP. Cathy for example, stated that "the management team here at the campus have always been interested in developing a program that was environmentally focussed…because of our [school] environment" (T:22/11). Similarly, David reported that his "school [has] a very large site…so we felt we had to be environmentally responsible about what we did with it" (T:24/11). These comments indicated that not only did principals use schools' natural environments to justify implementing SSP, but, in line with Giddens' notion of the duality of structure and agency, schools' structural elements, in the form of natural environmental or physical resources, influenced principals' decisions, or agency.

The rhetoric of principals, and teachers, also provided valuable insights into the purposes of education which underpinned principals' decisions to implement SSP. A comprehensive discussion of the purposes of education, a subject of continuing and vigorous debate, is beyond the scope of this research. However, Labaree (1997) provided a useful framework for this discussion. Labaree grouped the purposes of education into three main outcomes: "democratic equality" which prepares students to embrace the "full responsibilities of citizenship"; "social efficiency" which prepares students for their "economic roles"; and "social mobility" which provides students with a "competitive advantage in the struggle for desirable social positions" (Labaree, 1997, p.42). The principals of schools described the outcomes of SSP in terms of "social responsibility" (Philip, T:30/11), a notion that correlates well with Labaree's (1997) education for democratic equality.

The manner in which principals linked SSP to specific purposes of education was not entirely unexpected, and demonstrated a good understanding of SSP goals. As outlined by the Ahmedabad Declaration (UNESCO, 2007), the social transformation needed to counteract the detrimental effects of current human–environment relationships requires urgent changes to the

purpose and practices of education (Section 2.4). This idea was also supported by the findings of a 2009 survey of principals of Australian primary schools who were asked to identify what they considered to be the most important "purposes of schooling" (Cranston, Mulford, Keating & Reid, 2009, 2-4 July, p.2). Here, the need to not only "help students develop a love for learning" but importantly to "develop [students'] capacities to become active and responsible members of democratic society" were identified as the two most important purposes (Cranston et al., 2009, 2-4 July, p.3). Thus, reasons identified by principals for implementing SSP reflected an understanding of the purposes of education, including the notion of education for democratic equality, shared by primary school principals across Australia.

However, the notion of 'democratic equality' as a purpose of education, while recognised by many researchers as an essential component of educational goals (Carneiro, Crawford & Goodman, 2006; Feinstein, 2000; Margo, Dixon, Pearce & Reed, 2006) is somewhat problematic. A review of Australian educational policies showed that since the 1980s, policies have focused on purposes most representative of Labaree's (1997) notions of social efficiency and social mobility, almost to the exclusion of democratic or public purposes (Cranston, Kimber, Mulford, Reid & Keating, 2010; Mulford & Edmunds, 2010). Cranston et al (2010) reported that although recent policy documents, such as the Melbourne Declaration on Educational Goals for Young Australians, identified the need to develop "active and informed citizens" (MCEETYA, 2008, p.8) this purpose was lost amongst a plethora of statements that prioritised social efficiency and social mobility purposes. In addition, despite identifying some rhetoric congruous with democratic purposes in educational policies, the reality of these purposes being implemented had not yet been achieved (Cranston et al., 2010). Mulford and Edmonds (2010) agree, stating that:

> the large number of expectations on schools and especially the current emphasis on the private purposes of education is unhealthy for Australian society, not least because it runs the danger of producing self interested, competitive and culturally bound individuals who are more interested in their own self advancement than they are in making a contribution to the common good. In a globalising world where the role of the nation-state is changing and societies are becoming increasingly culturally diverse, schools are needed more than ever for the important public purpose of forming active citizens for democratic publics - people with the will and commitment to shape, and participate in, an inclusive and democratic civil society and polity that are responsive to the new environment (p.2).

The principals positioned democratic equality as an important purpose of education by choosing to implement SSP in their schools. These principals identified the ability of SSP to facilitate

education goals not strongly advocated by government curriculum guidelines, and therefore potentially not the main focus of the well-established classroom practices of their teachers. This not only confirmed these principals' practical consciousness' regarding 'social responsibility' and their belief in their social role in the provision of education, but also highlighted that these principals wanted change, and considered the implementation of change to be an importnat part of their role as a principal.

The changing role of school principals is the focus of a growing area of educational research, particularly in relation to leadership and management (Robinson, 2006, 2007; Sahid, 2004). Much of this research has identified the need for schools to re-define and re-design themselves in order to effectively meet the challenges of a world in which change is the norm (Beare, 2001). The role of a school principal is seen as vital to the success of these changes, and in the context of this research, particularly in terms of providing leadership that will improve student learning. Although several styles of school leadership have been identified and described (Robinson, 2006; Watson, 2009), "the more leaders focus their professional relationships, their work and their learning on the core business of teaching and learning, the greater their influence on student outcomes"(Robinson, 2007, p.12). Both Helen and Philip acknowledged the need for whole-school change, but importantly, also the need for pedagogical change. These principals aimed to influence the learning outcomes for students in the schools through pedagogical change.

6.3.2 SSP as a vehicle for change

The principals viewed SSP as an appropriate framework for developing the future-oriented and social transformative education they desired, as it encouraged the development of opportunities for authentic learning. Helen noted that SSP provided a "good life experience for children in terms of connecting with the real world" (P:21/11). She believed that incorporating SSP ideals within the curriculum provided opportunities for students to engage with "real life learning" by linking "real life to essential learning" (P:21/11), particularly in terms of establishing realistic contexts for developing basic skills in literacy and numeracy. However, both Helen and Philip understood that achieving such ideals required significant, school-wide change. For these principals, SSP was most valued as "a vehicle for whole-school change" (Philip, T:30/11). This suggested that these principals believed that mandating a set of rules and policies (a structured set) would lead to change by influencing teachers' practices, or in other words, that structure would strongly influence agency.

The need for change was of significant concern for the principals. Although Philip referred to the need make people "aware of the environment" (T:30/11), he did not equate the SSP with traditional fact-based neo-vocational pedagogy. Instead, he described SSP "as a curriculum development vehicle" (T:30/11); a way in which to alter the traditional teacher-centred, content-based teaching practices that were entrenched within all levels of the school. Teachers from

other schools agreed that SSP had been implemented for its potential to foster school-wide pedagogical change. Julia (Section 5.8.3) for example, stated that her principal "wanted to point us into a direction, because we needed a direction…we were floundering without her sort of leadership" due to entrenched and outdated pedagogical practices (T:16/11). Similarly Anita (Section 5.8.1) stated that her participation in the implementation of SSP was because "we're doing inquiry-based learning right through the school" (T:9/11). Anita explained that her principal was guiding teachers in undertaking inquiry-based pedagogies, as a transition from neo-vocational practices to the more socially-critical practices encouraged by SSP.

Philip noted that like other schools in this research, "we have a very traditional…teaching method, and a lot of our…planning and curriculum development hasn't changed in an eon…[there's] been a big push here…to change, but it's something that's very hard to do" (T:30/11), and that even though the recently introduced government curriculum, VELS, required teachers to move away from these traditional practices, the majority of teachers had not responded. These comments suggested that despite implementing SSP in order to facilitate pedagogical change, Philip's own experiences had shown that mandating a new set of rules or policies (structured set) alone did not guarantee that teachers would alter their practices.

Helen agreed that SSP represented an opportunity for change as it was a "perfect vehicle in terms of [implementing] VELS", by providing "teachers with a hook, a new way of teaching with a new way of learning" (P:21/11). Helen believed that teachers would be motivated to embrace this "new way of teaching" not simply due to the new rules and policies outlined in SSP documents, but in response to changes to the operational practicalities of the school. Helen summed up the SSP as "much more than environmental education…it's not an environmental program…it's an effective school model" (P:21/11). Helen's comments provided insights into how principals understood that SSP differed from traditional curriculum programs in facilitating change. Implementing SSP required making significant changes to the manner in which a school operated (described in Chapter 2), which in turn, altered many of the structural elements of teachers' work environments. Helen believed that such wide-ranging changes would be more likely to influence teachers' practices than simply the provision of a new curriculum document.

The notion that specific educational outcomes require specific pedagogical approaches was identified by Cranston et al. (2009, 2-4 July) as an understanding held by the majority of Australian primary school principals. When surveyed, principals suggested that the most important strategies for achieving the democratic purposes of education included encouraging "students to accept responsibility for their own actions", making "students the focus of what happens in schools" and encouraging "respect and cooperation among students" (Cranston et al., 2009, 2-4 July, p.5), outcomes not generally linked to neo-vocational pedagogies (Kemmis et al., 1983). Perhaps in recognition of the ubiquitous usage of neo-vocational pedagogies, and the extent of the change required to replace these with socially-critical approaches, principals

also indicated that achieving such educational goals required schools to "value and foster the professionalism of teachers" (Cranston et al., 2009, 2-4 July, p.5). In other words, not only did principals acknowledge that teachers were at the forefront of pedagogical change, but that they required assistance in order to enact new practices. Despite these understandings, Australian principals indicated that current educational practices failed most to achieve educational purposes related to assisting students to "develop a love of learning" or to "contribute to an environmentally sustainable society" (Cranston et al., 2009, 2-4 July, p.8).

6.3.3 Principals and SSP

The decision to implement SSP in the schools reflected the principals' belief of the importance of the purposes of education identified by Labaree as "democratic equality" (1997, p.42). The principals understood the intended goals of SSP. They believed that the environmental focus of SSP enabled their school to embrace a sense of social responsibility, not only by moving towards a more sustainable relationship with school environments, but by developing students' responsibilities and abilities to influence the effects of human–environment relationships into the future. Most significantly however, principals indicated that SSP represented a vehicle for change, not just in terms of its ultimate social transformative goals, but in terms of the educational processes required to achieve these. In general, the decision to implement SSP was directed towards providing an environment which challenged teachers to modify well-established but outdated pedagogies.

The decision to implement SSP indicated that the principals of schools in this research, like many Australian primary school principals, acknowledged the need to develop teaching strategies to assist students to become actively involved in society, particularly in ways that would enable them to "contribute to an environmentally sustainable society" (Cranston et al., 2009, 2-4 July, p.8). The decision to implementation SSP reflected principals' acknowledgement of the presence of a rhetoric–reality gap between 'democratic equality' purposes of education in recent policy documents, and the 'social efficiency' and 'social mobility' purposes most strongly supported by well-established pedagogies. This in turn, reflected the practical consciousness of principals who not only agreed with the future-oriented and socially transformative goals of SSP, but believed that schools played a vital role in achieving these goals. My analysis of the case study data indicated that the discursive consciousness of the principals focused on the need for their schools to be perceived to be acting appropriately, rather than the ultimate needs of the environment or society. In addition, the principals viewed SSP as a vehicle through which to initiate pedagogical change within their schools. This change was to be undertaken by teachers.

6.4 TEACHERS

Giddens' ontology in-situ framework (Figure 6.1) indicates that when implementing SSP, each teacher's practices would have influenced, and been influenced by; their unique but complex

and dynamically interrelated values, attitudes and beliefs; their interpretation of SSP; and their perception of both the constraining and enabling characteristics of various structural elements of their work environment. In the following discussion I present insights gained from my analysis of the rhetoric of teachers regarding the ontological elements they identified as significant to their implementation of SSP, including their: social expectations (unconscious motives); beliefs about student-teacher relationships (practical consciousness); and their perceptions of structural elements such as the rules and policies of SSP (structured sets). I discuss these according to three main themes that emerged from the data and which represented teachers' understanding of the 'aims of SSP and the purposes of education', 'achieving the goals of SSP', and 'understanding pedagogy'. I outline ideas revealed through my analysis of teachers' rhetoric in terms of 'teachers and SSP'.

6.4.1 Aims of SSP and the purposes of education

Teachers surmised that SSP had probably been developed in response to society's growing awareness of, and concern for, certain aspects of current human–environment relationships, which, according to Cathy had developed into "issues which are so important to society at the moment" (T:22/11). In particular, these issues reflected the "way people are heading", particularly with regard to the use of "natural resources" (Cathy, T:22/11). Teachers related these issues to the notion that "what we've got on earth is really limited" (Anita, T:9/11) and that therefore society must "take into account the fact that things [natural resources] are limited…they're finite" (Anita). In light of this, Fran (Section 5.11.3) described the ultimate aim of SSP as encouraging people to "try to change the way we are currently using resources" (T:2/11) in order to "sustain the resources we currently have" and ensure that "life in the world becomes sustainable" (Lisa, T:17/10). Teachers believed that this required society to learn ways in which to not only "maintain the environment" (David, T:24/11) but to "care for the environment" (Cathy, T:22/11). Such comments indicated that the teachers agreed with principals that SSP was essentially future-oriented and socially transformative education which aimed to influence human–environment relationships, and that SSP represented environmental education based on the "environmental preservation and restoration" and "natural resource conservation" (UNESCO, 2005b, p.28) components of ESD (Section 2.4). In addition, this correlated well with the results of surveys of teachers undertaking environmental education (e.g. Grace & Sharp, 2000; Tomlins & Froud, 1994) which found that teachers associated environmental education with educational goals to develop students' "personal responsibility for the environment" and "future attitudes to the environment" (Cotton, 2006, p.69). The teachers identified their role as educators in addressing such social concerns, through the aims of SSP, by "teaching children how to save the environment" (Robyn, T:9/11) or assisting "this generation to be making the changes now into learning a different way of living" (Fran, T:2/11). This role was seen to incorporate helping children to learn different ways in which to "use our environment" (Cathy, T:22/11) and to initiate "changes that children can make now that will

have long term positive effects" (Fran, T:2/11). Julia for example, described her role as teaching ways of "not being wasteful" (T:16/11). Teachers agreed that SSP was about "reinforcing the need for us to change the way we are currently living on the planet" (Fran, T:2/11), and therefore, "in the long term make changes to the world" (Karen, T:30/10). Teachers agreed that the ultimate goal of SSP was to influence human behaviour to ensure a more sustainable use of the earth's natural resources.

These comments provided valuable insights into teachers' beliefs about the aims of SSP, the purposes of education, and their roles and responsibilities as SSP educators. Teachers understood that SSP was not part of the current standard curriculum, but that it had been designed and introduced in response to public concerns. This suggested that teachers' recognised SSP as education that had been "socially constructed" and which supported the notion that "purposes for the next decade can only be based in our current circumstances and our preferred futures" (Schofield, 1999, p.9). Not only did this correlate with principals understanding of the goals of SSP, but also their beliefs regarding the purposes of education. Teachers agreed that SSP was a program "concerning the good of society" (Schofield, 1999, p.14) and which therefore represented education for democratic equality (Labaree, 1997). These ideas reflected teachers' practical consciousness (Figure 6.1), and indicated that these teachers, like their principals, believed that not only did society need to address certain environmental concerns, but that schools played a vital role in ensuring that this occurred. Teachers' ideas regarding the need to reduce society's wasteful overuse of natural resources correlated well with the stated goals of SSP, and framed SSP in terms that were both suitable and accessible to the students of primary schools (Section 2.5.2).

6.4.2 Achieving the goals of SSP

The teachers understood that the goals of SSP would be best achieved through the use of specific teacher practices which provided certain types of student learning experiences. Although many teachers referred to the need for students to "learn about the environment" (Julia, T:16/11), indicative of an education based on knowledge acquisition, it was clear that this was not what most teachers intended. David for example, pointed out that SSP is "not a subject" and that "the environment isn't a subject" (T:24/11). Teachers envisaged SSP goals as being achieved through an educational process which provided opportunities for students to develop their awareness of current human–environment relationships. This included, for example, ensuring students understood the "concept of what waste is" (Julia, T:16/11), by "trying to get children to understand how to use less water, and less energy" (Robyn, T:9/11) through exploring the notion of "reduce, reuse and recycle" (Julia, T:16/11). Although several teachers indicated that "being more aware" (Elizabeth, T:14/11) represented a greater knowledge 'about' the environment, most related this awareness to understanding the ways in which individuals and societies are interrelated. Anita for example, indicated that students should develop an awareness of the ways in which the "choices we [individuals] make can

impact on other people's choices" (Anita, T:9/11). Several teachers linked the notion of increased awareness to acceptance of responsibility. Fran, for example, described SSP learning activities as helping students become aware of the notion "that we [humans] have a responsibility to change the way we're currently operating for environmental reasons" (T:2/11). Teachers felt that the ability to "feel some sense of responsibility" (Lisa, T:17/10) was necessary for students to eventually "take ownership of how they affect the environment" (Andrew, T:17/10). Cathy noted that student awareness, in this sense, was "not only an idea of basic knowledge about the world, but how they [students] can make a difference" (T:22/11). As such, teachers suggested that SSP learning activities aimed to facilitate students' understanding "that taking action is so important and just little bits make such a big difference" (Cathy, T:22/11). David referred to broader goals related to "our social responsibility and our civics and citizenship work" which assisted students to become active citizens who were "not just taking up the environment and wasting space or using up the air, but actually contributing, actually making a difference" (T:24/11). David linked this to the notion that societal changes supported by SSP were best achieved through "building better pillars of society…[students who would leave] the community in a better way than [they] found it" (T:24/11). In other words, the teachers indicated that developing students' awareness and sense of responsibility would facilitate behavioural change. This corresponded with results from other research in which surveys of teachers undertaking environmental education (e.g. Grace & Sharp, 2000; Tomlins & Froud, 1994) found that teachers associated environmental education with educational goals to develop students' "personal responsibility for the environment" and "future attitudes to the environment" (Cotton, 2006, p.69).

These comments provided valuable insights into the values, attitudes and beliefs, which, in line with Giddens' ontological framework (Figure 6.1), interacted to form the unconscious motives of many of the teachers. There was a general consensus that implementing SSP was a matter of 'social responsibility', not only in terms of the responsibility of teachers implementing a curriculum that was derived from social concerns, but in terms of the role of teachers in developing students' understanding of their social responsibility. It seemed that the teachers accepted the notion that society expected them to undertake such a role, particularly as SSP had been developed in response to social concerns. In the same way that principals identified the need to be perceived to be addressing social expectations regarding the care of school grounds, these ideas indicated that teachers felt the need to undertake their role in a manner that met perceived social expectations, that is, social norms.

Most teachers referred to the importance of increasing students' 'awareness' of human behaviour as the first step in developing a sense of social responsibility in relation to the human–environment relationships addressed through SSP. They believed that this would encourage students to fulfill their social responsibility by altering their own behaviour. In other words, teachers correlated looking after the natural environment by teaching for behavioural

change, with social responsibility. However, some teachers suggested that behavioural change would occur only if it was accompanied by a change in attitudes. They referred to the need to "try to instill those attitudes in kids" (Simon), but did not agree on which specific attitudes students should develop. Cathy, for example, aimed to develop respect, stating that "I'm trying to teach the word respect…respect for themselves, respect for the environment" (T:22/11), while Lisa (Section 5.3) concentrated on attitudes which contributed to "all that consumerism" (T:17/10). Lisa believed that SSP goals required students to learn that they "don't need everything brand new and that sort of attitude [be]cause kids [think] everything's [got to] be new, and everything's [got to] be up to date so they've [got to] have every different 'Game Boy' play station or whatever it is going around…they can't just have one, they've [got to] have more" (T:17/10). Fran described the need to instill these new attitudes as habits, referring to the need to "change habits and instill new habits", in order to "make these responses [new attitudes] automatic" so that they "become the norm" (T:2/11).

Teachers believed that, due to the focus on changing students' attitudes and habits, SSP aimed to position students as agents of behavioural change beyond the school grounds. Elizabeth (Section 5.5) noted, for example, that although SSP "starts in the classroom with education" students take their new understandings "back to the family so that it's just not a 9 to 4 concept…it's a 24 hour concept…it's not just a school curriculum…it's an outreaching…program as well" (T:14/11). Lisa suggested that SSP engaged students in ways that encouraged them to develop a "passion to go away and learn something that they need to be putting in place at home and around the community" (T:17/10). In this manner, students were actively "imparting [their new understandings] to someone else" (Elizabeth, T:14/11) and could, for example, "help change the habits of [their] parents" (Robyn, T:9/11). Similarly, Cathy related attitudinal change to the ability of students to maintain their roles as change agents as they developed their roles in society, stating that "I'm hoping if they start to change their attitudes, it will have this fantastic flow-on effect as they start to get older" (T:22/11). In other words, teachers viewed SSP as working towards social transformation through changing the attitudes and behaviour of their students.

These comments reflected teachers' understandings of two important aspects of human behaviour and their relationship to social norms: the values and attitudes that direct an individual to behave in certain ways; and the habits, or behavioural routines, that position certain behaviours as social norms. Recognition of the importance of an individual's values and attitudes to their actions and understanding of the value-laden nature of environmental issues is paralleled by studies indicating a pervasive belief amongst primary school teachers that environmental education must include the teaching of attitudes (Cutter & Smith, 2001b). Similarly, an Australian Government study commissioned in 2002 identified ten main values considered by school communities to be critical components of values education in schools: tolerance, respect, responsibility, social justice, excellence, care, honesty freedom, and being

ethical. The maintenance and preservation of the natural environment was specifically mentioned as a part of each individual's responsibility (DEST, 2005).

However, this type of education is somewhat problematic, and would require teachers to determine what values and attitudes are, how they are constructed, and which values and attitudes should be taught in order to achieve a certain aim. However, although the notion that behaviour is strongly linked to an individual's values and attitudes is strongly supported in the literature (e.g. Feather, 1992; Gynnild, 2002; Raulo, 2000; Rohan, 2000), research indicates that the ability of one individual to 'instill' a new attitude on another is, at best, difficult, if not impossible (Doll & Ajzen, 1992; Fishbein & Ajzen, 1975, Section 2.3.2). Irrespective of whether or not any teacher could facilitate value or attitude change in their students, the perception of the strong relationship between values and environmental issues has led to concerns by some educators that incorporating environmental ideals in any curriculum is simply indoctrination (e.g. Burbules & Berk, 1999; Jickling & Spork, 1998, Section 2.3.2). Certainly some aspects of the rhetoric of teachers, particularly Simon (Section 5.11.2) and Fran, who described the need to 'instill' attitudes and habits in their students, might be interpreted as indoctrination. However, a closer look at the rhetoric of the teachers did not indicate that they viewed SSP or socially-critical pedagogy as indoctrination. They referred to the need to develop students' sense of "social responsibility" (David, T:24/11) and "passion to go away and learn" (Lisa, T:17/10). Specific values and attitudes mentioned by teachers included the need to learn "respect" (Cathy, T:22/11), to take "ownership" of their actions (Andrew, T:17/10), and to be less wasteful consumers (Julia, T:16/11), in other words, to become more-aware citizens. These attitudes and values were representative of those considered by school communities to be critical components of school education, discussed above (DEST, 2005), and reflected the notion that the goals of SSP were strongly related to purposes of education which were identified by both principals and teachers to be related to democratic equality. In addition, and as argued by many educators (e.g. Fien, 1993; Huckle, 1986; Kelly, 1986; Scott & Gough, 2003) it is the intentions and manner in which teachers approach their teaching, not simply the style of pedagogy, that determines when education becomes indoctrination (see Section 2.3.2).

Although a teacher's ability to 'instill' specific values or attitudes in their students is uncertain, their ability to encourage students to develop certain habits, or behavioural routines, is more achievable. In line with Giddens' notion of the duality of structure and agency, assisting students to behave in certain ways in response to current social norms will in turn influence those social norms. Although such a behaviourist teaching and learning focus may encourage little more than "green consumers" (Gayford, 1996) the teachers believed that the development of appropriate behavioural routines could encourage students to act as change agents in their families and local communities (behavioural routines were also an important component of teachers' practices; see Section 6.9).

However, the teachers noted that the ability of students to effectively influence society in this manner required more than just attitudinal and behavioural change and that it was essential for students to also develop a range of both practical and thinking skills. This understanding was supported by the idea that creating sustainable human–environment relationships through education is, in fact, a process to "learn how to learn and how to be critical" (Scott & Gough, 2004, p.xiv). Anita, for example, suggested that students needed to begin to think "about the kinds of things they can do at home, the kinds of choices" that were available to them (T:9/11). Similarly, David indicated that influencing others required "being able to talk about it [a behavioural change] intelligently" in order to explain "why you're doing it and why it's important" (T:24/11). Fran described this as the need for students to develop the confidence or "the guts to question" (T:2/11).

David suggested that if students were to develop these types of skills, implementing SSP required an "integrated approach" in which teachers and students engaged with a range of "themes which are a part of life" (T:24/11). This correlated with Helen's reason for implementing SSP: its ability to interest students in learning through participating in real life. Karen (Section 5.4) on the other hand, indicated that achieving SSP goals depended on students being able to understand and consider the repercussions of a history in which humans "have not respected our environment", and that this required teachers to assist students to develop an "understanding of what it's been like, how we've used it [the environment], and now what we've got to do to make it last" (T:30/10). Andrew agreed, stating that he aimed to "teach students not just more about the environment but the effects…not just that they [students] are having on the environment, but the human race…about how humans are affecting the planet…and how in the future that's really going to have some consequences for us [humans]" (T:17/10). Lisa related all of these ideas to "educating the children about the future", and that therefore, SSP aimed for "long-lasting" educational outcomes (T:17/10).

These comments suggested that the teachers understood the notion that educational goals depended on the educational process, or pedagogy, and that therefore SSP goals required teachers to develop specific learning experiences for their students. The teachers indicated that these experiences needed to provide opportunities for students to, amongst other things, critically assess the historical perspective of the social concerns addressed by SSP, to critically evaluate their own role in these concerns, and to imagine a range of possible futures. In addition, appropriate learning experiences needed to build students' confidence and develop their skills to question not only what they see, but what they believe and what they imagine. Thus, analysis of the rhetoric of the teachers indicated that they agreed with principals that a traditional neo-vocational pedagogy could not effectively achieve SSP goals. The teaching strategies and learning outcomes identified by the majority of teachers as the best way in which to achieve SSP goals most strongly correlated with a socially-critical pedagogy, through which learning experiences provided students with opportunities to gain "historical and critical

perspectives on society" and to "engage in activities that are consistent with building a responsive democratic society" (Gough, 1997, pp.91-92). In other words, teachers understood that SSP required "teachers [to] shift from control of knowledge to creation of processes whereby students take ownership of their learning, and take risks to understand and apply their knowledge" (Wink, 2000, p.135). The nature of socially-critical pedagogy, and the manner in which this informed SSP guidelines and activities was outlined in Chapter 2.

Although the teachers' rhetoric indicated an understanding of a need for a socially-critical pedagogy, the majority of the teachers identified student learning as the mechanism through which SSP goals would be achieved. Both Julia and Anita reported that their principal was assisting them to alter their pedagogy in order to more effectively implement SSP, but Cathy was the only teacher to indicate that achieving the educational goals of SSP was actually dependent upon teacher learning. She described SSP as "trying to empower teachers, or really teaching teachers to empower children" (T:22/11). Cathy's understanding reflected the motivation of the principals who chose to implement SSP in order to encourage teachers to learn to teach differently. My analysis of the teachers' rhetoric revealed their understandings of the role and nature of different pedagogies.

6.4.3 Understanding pedagogy

In order to investigate the relationship between teacher rhetoric and the reality of their practices, it was essential to explore the teachers' rhetoric in relation to different pedagogical approaches (Table 2.2). The teachers commented on hypothetical scenarios (reproduced in the Appendix), each of which represented a different pedagogical approach to undertaking an SSP related activity (see Section 4.4.4). In the following discussion I highlight the teachers' understandings of the differences between a neo-vocational pedagogy, an approach that principals considered to be well-established but out-dated, and the socially-critical pedagogy encouraged by SSP and identified by the teachers as providing the most appropriate mechanism for effectively achieving what they considered to be the educational outcomes of SSP. The teachers discussed these differences in terms of teacher–student relationships and the classroom practices of socially-critical pedagogy.

6.4.4 Teacher–student relationships

Neo-vocational pedagogy was described as a "teacher controlled" practice in which the teacher was in "total control" of the classroom (Karen, T:30/10). Teachers noted that the learning activities reflected a "teacher-led focus" (Lisa, T:17/10) in which even the "questions are provided to them [students] rather than them generating their own questions" (Julia, T:16/11). Although Elizabeth described this as ensuring "a very logical and progressive approach" (T:14/11), others described this as "closed" (Julia, T:16/11), "restrictive" (Anita, T:9/11) and "prescriptive" (Cathy, T:22/11). Anita agreed, noting that such teacher-directed learning, where there is "not a lot of student input", is akin to "giving the children a template" (T:9/11) within

which all their learning must occur. Cathy was most concerned that such a pedagogical approach "didn't allow for the different learning styles" which in turn, suppressed students' "expression of individuality" and ignored the benefits of the "different ways that children…come up with such brilliant things to do" (T:22/11). Karen referred to her own experience which indicated that learning derived from teacher-initiated ideas was "just simply not as powerful as coming from the children" (T:30/10). Similarly, the teachers considered the assessment of student learning in neo-vocational pedagogical practices to be strongly teacher-directed. Anita, for example, suggested that neo-vocational pedagogies were "just done by the teacher to meet [curriculum] criteria", or to "maximize the chances of successful completion [of a curriculum]", and were therefore "not about the children's outcomes" (T:9/11). Julia agreed, asking rather sarcastically "is that the reason that we do it?", and noted that such neo-vocational pedagogies suggested that there is always only one correct answer to any question; "it almost seems like you'd get into trouble if you didn't get quite the right answer" (T:16/11). Karen voiced similar concerns, stating that neo-vocational pedagogies are:

> just superfluous, it's ridiculous to try and teach that way…it has no meaning…it has no meaning to the teacher because they're doing it to please somebody who's written this curriculum…therefore it's not going to have any meaning to the child (T:30/10).

Such comments indicated that these teachers understood the essential purpose of a neo-vocational pedagogy to be the transmission of knowledge from a teacher to their students, and that this knowledge was not only outlined in curriculum documents, but that it represented unquestionable objective truths. The teachers recognised that a neo-vocational pedagogy represented a positivist view that "reality is independent of the observer" (McRobb, Jefferies & Stahl, 2007, p.2), and that teachers who employed such a pedagogy were often "focused on the role of formal education in providing teaching which may or may not result in learning" (Schofield, 1999, p.7).

In contrast, a socially-critical pedagogy was considered to represent a "more child-centred and child-directed" practice (Karen, T:30/10) characterized by "teachers leading students to do quite a bit of planning" (Simon, T:30/11) in a learning environment where "students choose the focus of their study" (Julia, T:16/11). Teachers commented that student decision making was essential as when there is "student involvement…they [students] have power over it [the learning focus] and if they own it they have a different attitude towards it" (Lisa, T:17/10). Karen agreed, noting that when students negotiated with teachers to determine their learning focus, "the children have been empowered" (T:30/10), and that this gave "them an opportunity to show their skills through their strengths" (Julia, T:16/11), and the opportunity to "build on…what they already understand" (Simon, T:30/11). Robyn (Section 5.8.2) suggested that not only did the socially-critical pedagogy advocated by SSP provide students with a feeling of

ownership over their learning, but that when "the whole-school's involved in things like this there's more of an ownership over the school" (T:9/11).

Such comments indicated that the teachers recognised the important epistemological differences between neo-vocational and socially-critical pedagogies. They interpreted a neo-vocational pedagogy as the "transfer of knowledge in an end form to the individual [student]", and related socially-critical pedagogy to the notion that "understanding is gained by the individual [student]…when actively examining and questioning the world around him/her" (Mogensen, 1997, p.433). These understandings not only correlated well with the principals' ideas regarding the pedagogical needs of SSP, exemplified by Helen's comments regarding "real life learning" (P:21/11), but also confirmed that the teachers believed that achieving SSP goals required the provision of opportunities for students to develop their awareness of current human–environment relationships, particularly in terms of the ways in which individuals and societies interrelated. This was not seen by the teachers to be solely about acquiring knowledge. Instead, the teachers agreed with the principals that these goals were concerned with achieving 'democratic equality' (Labaree, 1997) through developing students' sense of social responsibility, or as stated by David, by "teaching life" (T:24/11). Thus, my analysis of the rhetoric used by the teachers in relation to pedagogy indicated that these teachers did not equate a neo-vocational pedagogy with democratic equality purposes of education. In light of this, and in order to answer the research question regarding the nature of rhetoric–reality gaps, it was essential to investigate the manner in which the teachers believed that a socially-critical pedagogy manifested in the classroom.

6.4.5 Classroom practices of socially-critical pedagogy

The teachers noted that neo-vocational and socially-critical pedagogies manifested in distinctly different classroom practices. Elizabeth stated that unlike neo-vocational pedagogies, socially-critical pedagogies were, most importantly, "all about engagement" and as such, embraced the notion that "they [students] like doing rather than just sitting there passively" (T:14/11). Julia supported this observation, commenting that students "do learn more and respond better when they're doing hands on stuff" (T:16/11). These ideas reflected the understanding that a socially-critical pedagogy encourages students to actively participate in the learning process.

Julia's notion of "hands-on stuff" (T:16/11) was identified by several teachers as an important contributor to the ability of socially-critical pedagogy to engage students. Lisa suggested that any hands-on learning activity engages students as "they like it, they enjoy it, they want to be a part of it, they [want to] know what it's about" (T:17/10). Elizabeth noted that hands-on learning activities improved student learning due to the co-operative and collaborative learning environments in which they usually occurred, stating that "hands on and working with a partner…and working in small groups…is a really good way of drawing out and pushing out and maximising their [a student's] own understanding of some learning" (T:14/11). Robyn

agreed, but indicated that this was most effective when "children are working with different year levels rather than just being confined to their own classroom" (T:9/11). Robyn's observation was supported by several teachers who recognised that, unlike standard school classes, a multi-age learning group could provide a learning environment that was "a realistic representation of the community" (Fran, T:2/11). Teachers considered this to be an essential characteristic of "teaching life" (David, T:24/11) through a socially-critical pedagogy. David described multi-age learning as "authentic learning in that it's giving the kids experiences to deal in the community and deal collaboratively" (T:24/11). Cathy agreed, noting that a multi-age learning experience "gives the kids a really good sense of community and how they can be part of it…how different members of the community can contribute" (T:22/11).

Several teachers indicated that such multi-age learning experiences are much more effective when they incorporate communities "beyond the classroom" (Julia, T:16/11). Robyn stated that:

> I think you need to go out of the school classroom and then you can come back and bring what the children have learnt out there and go from there…it gives the kids such a new perspective and learning as well" (T:9/11).

This was also seen to ensure that learning revolved around issues which involved "not just some other country or out woop woop that they're [students] not related to" but issues which are "not unrelated to what we need to be doing in our own world" (Julia, T:16/11). Teachers noted that the "whole school approach" (Robyn, T:9/11) advocated by SSP provided opportunities for students to learn through participation in hands-on activities undertaken by multi-age, community-based groups. David believed that SSP could provide "rich learning" opportunities which involved "collaborative learning" and "negotiating" in an environment in which "everyone's involved and where different people have got different inputs" (T:24/11). Such comments indicated that teachers viewed a socially-critical pedagogy as providing opportunities for students to learn about the ways in which individuals and societies interrelated by actively participating in complex and dynamic social groups. In addition, this was supported by the notion that effective socially-critical or transformative education must enable students to actually use the understandings they are developing, that is, that socially constructed knowledge is applied to the social context of life (Fien, 2001; Wink, 2000).

The teachers understood that in order to undertake such a socially-critical pedagogy, as opposed to a neo-vocational pedagogy, they needed to take on a less prominent role in the learning process. For example, many teachers referred to the benefits of inviting community 'experts' into the classroom in order to "use their [guests'] resources" (Andrew, T:17/10), and to introduce students to "new ways of getting information" (Robyn, T:9/11). Similarly, Julia believed that community guests enabled students to access information and ideas not able to be

provided by their teachers, as "teachers…really don't know everything, there's lots out there we [teachers] can get other people to help us with" (T:16/11). On the other hand, Karen noted that it can be quite important for students to gain ideas and information from multiple sources and perspectives as "the children actually get the message not just from a teacher but from other people…it's really powerful [when it] comes from more people than just the teacher" (T:30/10). This was also considered important in terms of the assessment of student learning. Contrary to neo-vocational pedagogy, the teachers viewed student assessment in socially-critical pedagogies as a more integral component of the learning process. The use of multi-age learning groups and community settings indicated that students were obtaining ongoing feedback in the form of "assessment not just from their teachers, but from their local community" (Julia, T:16/11).

These ideas were supported by Schofield's (1999) observation that "the 'de-institutionalisation' of education" so that "more formal education occurs outside the classroom" (p.7) is a current trend in education. When Ivan Illich first proposed the "disestablishment of schooling and the creation of learning webs" in 1971, as a way in which to address problems associated with traditional educational practices, the idea was mostly dismissed as "radical" (p.7). However, research indicates that since the introduction of "internet-based interactive learning" (p.7), there has been a general acceptance of the notion that there are "multiple pathways to knowledge, to understanding, to literacy, to skills in society" (p.8). The comments by the teachers demonstrated their understanding that a socially-critical pedagogy embraced the notion that valuable learning is neither restricted to the classroom, nor to the teachings of a single individual. Instead, valuable learning can occur at anytime, in a variety of social and natural environments, and in response to a wide variety of resources.

6.4.6 Teachers and SSP

My analysis of the rhetoric used by the teachers to describe the educational aims and pedagogical requirements of SSP provided valuable insights into their perception of various ontological elements of their work environments. Teachers fully understood the environmental and educational goals of SSP, as outlined in SSP documents. They identified the development and implementation of SSP as a response to social concerns for the current state of human–environment relationships, particularly with respect to the human use of natural resources. They agreed with the principals that SSP was a future-oriented education which aimed to transform human–environment relationships through encouraging attitudinal, and therefore behavioural, change in students, and by positioning students as agents of social change. Only one teacher, Cathy, demonstrated a good understanding of additional goals, held by the principals, for SSP to achieve significant pedagogical change.

The teachers also demonstrated a good understanding of the differences in epistemology, teachers' motivations, educational aims and classroom practices of a neo-vocational pedagogy and the socially-critical pedagogy encouraged by SSP and principals. They described socially-

critical pedagogy as a strongly student-centred approach where teachers facilitated learning experiences which evolved directly from students' questions and interests. These experiences were considered to be most effective when they incorporated activities within a community of people of different ages, different backgrounds and with different ideas. Teachers believed that such opportunities developed students' abilities to negotiate, cooperate and collaborate in an environment representative of the society in which they should become active citizens, and that in this way, a socially-critical pedagogy addressed the democratic equality purposes of education to be achieved through SSP. In other words, the teachers demonstrated an understanding of the pedagogical approach best able to achieve the educational outcomes of SSP.

6.5 REALITY

In order to understand the nature of an educational rhetoric–reality gap, it was important to establish the reality of the implementation of SSP in the schools. This reality was represented by the practices of teachers within their usual occupational environments, as described in Chapter 5. In this chapter, I analyse the nature of the pedagogies employed by teachers implementing SSP (regionalisation and routinisation) (Figures 6.2 and 6.3) and identify the strategic cases. I compare the reality of teachers' pedagogies with critical ontological elements of structure and agency, and discuss the implications of these with respect to answering the research question 'What is the nature of an educational rhetoric–reality gap?'

6.5.1 Teachers' practices: analysis criteria

The teachers were asked to nominate a session that best portrayed their approach to implementing SSP. During these sessions, I observed each teacher's practice in order to determine the degree to which it approached a socially-critical pedagogy according to nine criteria. These criteria, identified from the descriptions of neo-vocational (teacher-centred), liberal-progressive, and socially-critical (student-centred) pedagogies provided by Allen (2004), Huba and Freed (2000), and Kemmis, Cole and Suggett (1983), represented different aspects of a learning environment, particularly the roles and interrelationships of teachers and students. The degree to which each teacher's practice conformed to each of these criteria, on a scale from 0 (not at all) to 1 (closely) is shown in figures 6.2 and 6.3. Figure 6.2 shows my assessment of the teaching practices of strategic cases[18] (Cathy, Elizabeth, Karen and Lisa) and Figure 6.3 shows my assessment of the teaching practices of supporting cases (Anita, David, Fran, Julia, Robyn and Simon). The figures also present my interpretation of the type of pedagogy (neo-vocational, liberal-progressive or socially-critical) represented by the level to which a teacher's practice conformed to these criteria.

[18] The manner in which strategic and supporting cases were identified and used in this research is described in Section 4.3.

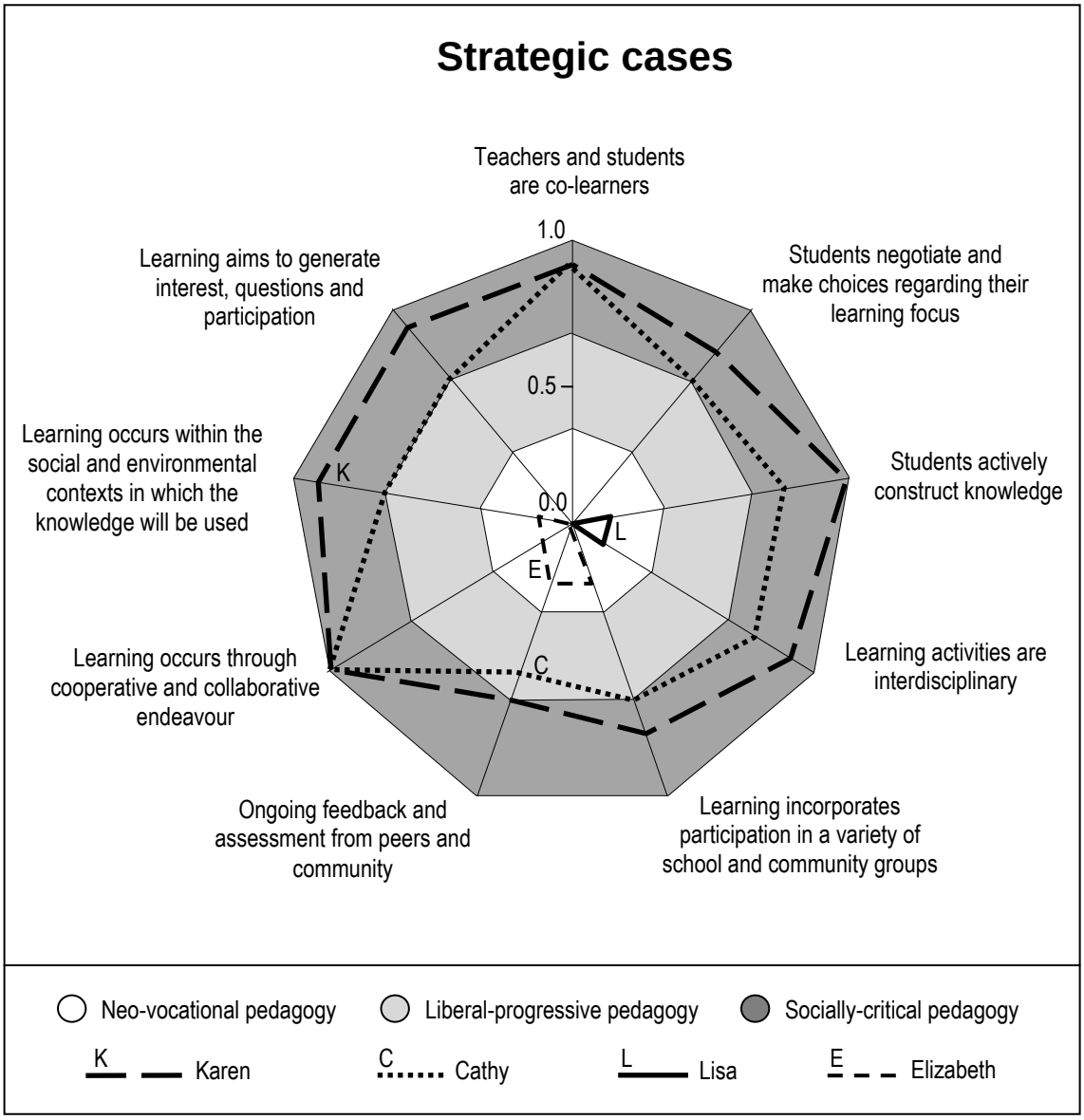


Figure 6.2 Assessment of the teaching practices of strategic cases.

6.5.2 Teachers' pedagogies

The figures indicate that the teachers employed a range of practices in order to implement SSP. These practices ranged from a strongly teacher-centred neo-vocational pedagogy such as that employed by Elizabeth, Fran, Lisa and Simon, to a significantly student-centred socially-critical pedagogy, such as that employed by Cathy and Karen. In contrast, the practices of Anita, David, Julia and Robyn are better described as liberal-progressive, although each of these teachers' practices incorporated some aspects better identified as either neo-vocational and/or socially-critical.

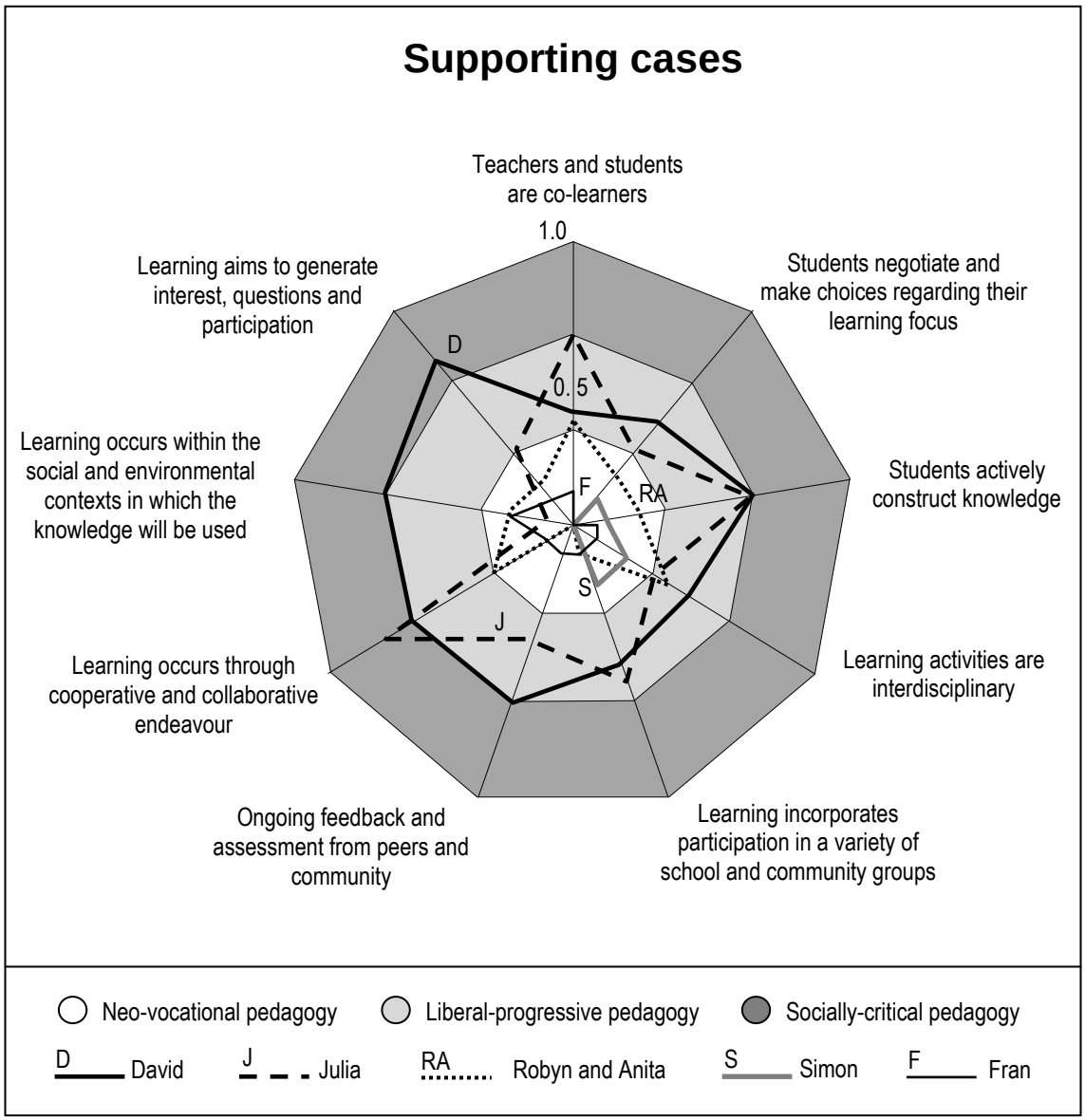


Figure 6.3 Assessment of the teaching practices of supporting cases.

Figure 6.2 highlights the differences, in terms of the reality of teacher classroom practices in the context of implementing SSP, between the strategic cases. Cathy and Karen practiced a socially-critical pedagogy, while Lisa and Elizabeth practiced a neo-vocational pedagogy. The figure shows that Cathy and Karen positioned themselves as "co-participants with students in the learning process" (Wink, 2000, p.71) during which "teachers teach less often by didactic approaches….and more often by encouraging inquiry, critical reflection and action" (Gough, 1997, p.91). Cathy and Karen ensured that learning activities were "negotiated with the students, other staff and the wider school community" in order to position students "as the agents for producing working knowledge through interaction through others in socially significant tasks" (Gough, 1997, p.91). In contrast, the figure shows that Lisa and Elizabeth positioned themselves as the "authority" in the classroom, who "uses directive pedagogy" for

"transmitting knowledge" to students (Kemmis et al., 1983, p.12). Thus, unlike Lisa and Elizabeth, Cathy and Karen demonstrated an "openness to the unplanned directions that learners will take" when engaged with learning through a socially-critical pedagogy (Vare & Scott, 2007, p.198). In the context of the implementation of SSP through a socially-critical pedagogy, the practices of Lisa and Elizabeth constituted educational rhetoric–reality gaps.

6.6 SSP AND RHETORIC–REALITY GAPS

Figures 6.2 and 6.3 highlight the presence of educational rhetoric–reality gaps in the implementation of SSP by all but two of the teachers (Cathy and Karen). The analysis I undertook to identify these gaps provided valuable insights into several ontological elements, related to both structure and agency, that may have constrained and/or enabled these gaps to develop, and indicated where additional analysis was required in order to better answer the research questions. I discuss these according to three main themes: Permission and support; Knowledge required to implement SSP; Implementing a socially-critical pedagogy; and Teacher experience.

6.6.1 Permission and support

Educational change, such as the pedagogical change advocated by the principals who chose to implement SSP, can cause a great deal of anxiety (e.g. Evans, 1996; Fullan, 2001). Several researchers have shown that teachers' anxiety can in many cases be minimised when they perceive that they have the support of their principals (Carson, 2007; O'Connell, Ely, Krasnow & Miller, 2001). It is therefore not unexpected that educational rhetoric–reality gaps related to teachers' practices of environmental education might reflect "issues of whether or not teachers feel they have permission to carry out the activities…they feel constitute environmental education" (Robertson & Krugly-Smolska, 1997, p.311). My analysis of the rhetoric of the teachers suggested that permission for them to implement SSP and a socially-critical pedagogy was sought from both principals and colleagues.

In most cases, the structural elements of schools that were related to rules, policies and hierarchical management systems gave teachers unqualified permission to fully implement SSP through a socially-critical pedagogy. The teachers acknowledged that their principals had not only been responsible for the decision to implement SSP, but were actively involved in supporting teachers through the provision of time for professional development and curriculum design, the development of new and different learning spaces, and in some cases, mentoring of classroom practices.

Cathy for example, considered the incorporation of SSP into her teaching routine to be part of her usual process of trialing new approaches. She indicated that she felt supported in her efforts to constantly improve her practice, stating that if "I find something that works, okay I'll do it again, but, if I find something that doesn't work as well as I had hoped, then I'll look for an

alternative" (T:22/11). She believed that she was "allowed to do that" due to a "fairly progressive" principal who encouraged an "open minded approach" and "willingness" to "have a go" (T:22/11). Cathy reported that her principal embraced the philosophy that "we've done it this way, why not try it another way, if it's successful, great…okay if you fail…we've learnt something out of it" (T:22/11). Cathy's comment that "it's great to have an institution that can do that" (T:22/11) suggested that her willingness to try different approaches may have been constrained if she had not had her principal's support.

Elizabeth was the only teacher to report that she was implementing SSP activities without support from her principal. She had developed SSP-related activities under the auspices of the school's previous principal, who had been both responsible and extremely enthusiastic for the program. However, at the time of this research, Elizabeth's new principal was unaware of SSP and unsure of its status in the school. Although Elizabeth maintained her waste-management routine (see Section 6.9), she reported that other teachers had stopped implementing SSP programs, stating that, for example, during the "year before last…we had a fairly big energy-wise education program, and we had an energy monitor for each room, and that person was in charge of turning off all the switches each night…this year we haven't" (T:14/11).

However, irrespective of the level of support received from a principal, many of the teachers did not implement SSP through a socially-critical pedagogy. Lisa for example, employed a strong neo-vocational pedagogy (Figure 6.2) despite unequivocal support from Helen. At other schools, a principal's strong support for SSP both enabled and constrained the teachers' implementation of SSP. This was particularly true at East Valley Primary.

Several teachers at East Valley Primary participated in this research and provided valuable insights into the potential for a principal's support to both enable and constrain a teacher's ability to implement a specific pedagogy. Karen for example, commented that her principal strongly supported all of her efforts to facilitate learning experiences at EVNP for all students. However, as Karen's classroom was removed from the school campus, and because many of the school's teachers did not visit EVNP, she did not believe that her work was unduly influenced by the actions or beliefs of her teacher colleagues. This was not the case for teachers who taught in classrooms at the main East Valley Primary campus. The enabling effect of a principal's assistance in terms of mentoring in classroom technique was best highlighted by Julia and Anita, who both attributed their use of non-neo-vocational practices to their principal's expertise as "we were floundering without her" (Julia, T:16/11). Julia reported that her principal "trains us all" and "is guiding us through the process of designing our curriculum" (T:16/11). The liberal-progressive aspects of their pedagogy (Figure 6.3) reflected their attempts to incorporate an "integrated enquiry" approach to their teaching, which they described as "something very new to us" (Julia, T:16/11). However, although teachers such as Julia and Anita found their principal's support very useful, they also commented that it created tensions

within the school. Their willingness to be supported in this manner was seen as a betrayal by colleagues who resisted change, resented SSP as an imposition on their well-established routines, and were "snobby" (Anita, D:9/11) in their dismissal of non-neo-vocational pedagogies. Robyn, Julia and Anita noted that they were "very lucky because we get together and plan" (Anita, D:9/11) but that they could not "talk with, say, the other Prep teachers" (Anita, D:9/11) due to these tensions in their school. They commented that on any given day, teachers in adjacent classrooms may not speak with each other, and would not know what activities each were undertaking with their students. Robyn noted that "other classes [are] sort of very much, very, segregated. We're doing our own thing. Someone else is doing theirs…[there is] not much talk about what each of us is doing" (T:9/11).

Robyn, Julia and Anita all commented that the tensions in the school made their working environment uncomfortable, and reduced their confidence to successfully undertake the changes that their principal supported. The tensions at East Valley Primary described by these teachers highlighted the potential for low teacher morale, or reduced ontological security, to thwart any change process (Gitlin & Margonis, 1995; Hargreaves & Fullan, 1998), a notion supported by the observation that "educational change is hard to implement effectively because it is often resented and resisted, and because it often creates dissatisfaction, lowered morale and demotivation" (Evans, 2000, p.188). The resistance of some teachers to change at East Valley Primary influenced the morale and motivation of those who supported change, and indicated that teachers' practices were not only influenced by the presence or absence of permission and practical support from principals, but also from colleagues.

However, the role of the principal in the formation of tensions at East Valley Primary was not clear. The factors that influence the ability of a principal to successfully bring about change in their school have been the subject of much research (e.g. Davis, Darling-Hammond, LaPointe & Meyerson, 2005; Mitchell & Castle, 2005; Spillane, 2006; Timperley, 2005) but remain poorly understood (Gaussel, 2007). Gaussel noted that "researchers do, however, agree on the fact that the influence of the principal has more to do with his/her personality than with his/her effective institutional power" (2007, p.3). In terms of this research and Giddens' ontological framework, Gaussel's comments indicate that teachers' perceptions of permission to implement SSP may have influenced their ability to do so less than their perception of the personal qualities of, or their personal relationship with, their principal. The influence of such aspects of the role of the principals in the implementation of SSP was not investigated in this research; however, it was apparent that the principals were aware of the potential for their support of the implementation of SSP to create tensions in their schools.

As indicated in Section 6.3, the principals from only two schools agreed to personally participate in this research. While some principals stated that they simply did not have time, others voiced concerns about the effect that their participation may have on their efforts to

implement SSP in their school. These principals acknowledged the difficulties they faced in mandating pedagogical change, and the tensions this created amongst their teachers. Some principals acknowledged that they deliberately focussed their support towards those teachers willing to engage with SSP in the hope that others would, in time, see the benefits and feel less threatened by the changes.

6.6.2 Knowledge required to implement SSP

Researchers have also attributed different types of teacher 'knowledge' to the development of rhetoric–reality gaps. For example, Schweisfurth (2006) related educational rhetoric–reality gaps to "space" in a curriculum (p.210). 'Space' in any curriculum may only be effectively utilised to achieve specific goals by teachers with the understanding, or knowledge, to do so. Schweisfurth (2006) noted that specific educational goals, such as the incorporation of global issues, "may not be explicit" in a curriculum, but that a curriculum may instead provide "the space for teachers" to engage with such goals. In other words, the structural elements of a curriculum may require teachers to "engage in issues they feel are important" (p.210). While this example highlights the role of agency in teacher practice, it does not adequately explain the nature of the rhetoric–reality gaps that I identified. Researchers have also attributed ineffective environmental education to inadequate teacher knowledge regarding environmental concepts (e.g. Cutter & Smith, 2001a; Said, Ahmadun, Paim & Masud, 2003; Spork, 1992), and this no doubt contributes to the development of many rhetoric–reality gaps. However, as identified by both the principals and teachers, SSP was not a typical curriculum. As outlined in Chapter 2, SSP documents incorporated specific instructions for a sequence of mandatory activities to be undertaken by schools and teachers in order to implement the program and to obtain their SSP accreditation. These were designed to assist school communities to begin to develop a deeper understanding of SSP goals, irrespective of their initial environmental knowledge. In other words, implementing SSP through a socially-critical pedagogy positioned teachers alongside their students as learners. Schools were also encouraged to modify or adapt other aspects of SSP implementation to suit their own interests and goals. Professional development sessions and collaborative work with SSP staff assisted schools and teachers in these tasks.

More significantly however, the implementation of SSP was not predicated on the teaching or learning of specific environmental knowledge. All of the teachers demonstrated an excellent understanding of the rhetoric of SSP and correctly identified the future-oriented and social transformative nature of its goals to influence human–environment relationships. In addition, teachers identified that SSP goals were best achieved through the development of students' attitudes, sense of responsibility, curiosity and confidence to question, that is, through the development of aspects of students' agency. In other words, the lack of teacher knowledge, regarding either specific environmental knowledge or understanding of the goals or requirements of SSP, did not adequately explain the rhetoric–reality gaps that I identified.

However, it was also important to consider teachers' knowledge of the pedagogical practices required to achieve the SSP goals they identified.

6.6.3 Implementing a socially-critical pedagogy

The need to implement a socially-critical pedagogy, as proposed by SSP and described in Chapter 2, has been considered responsible, in part, for the prevalence of rhetoric–reality gaps related to environmental education (e.g. Chapman, 2004; Oulton & Scott, 2000; Robinson, 1994; Scott & Oulton, 1999; Walker, 1997). Researchers have reported that many teachers find socially-critical pedagogy difficult to embrace as it "fails to give them an implementation theory" (Walker, 1997, p.161), and because "schools are structured in such a way that they cannot accommodate the radical social change required" (Robinson, 1994, p.60). In addition, implementing a socially-critical pedagogy forces teachers to "reconceptualise their curriculum and to question prevailing practices" (Walker, 1997, p.158). The implementation of a socially-critical pedagogy is a complex and multifaceted process. The implementation of a socially-critical pedagogy was not only a major motivation for the decision by principals to establish SSP within their schools, but was recognised by teachers as essential for achieving the goals of SSP.

6.6.4 Teacher experience

Prior to undertaking this research, I assumed that the teachers most willing to embrace pedagogical change in order to implement SSP would be the younger, albeit less-experienced teachers; those who had less well-established classroom routines and who may have experienced a range of pedagogies during their own schooling. These preconceived ideas however, were shown to be inaccurate. Participants included teachers with a range of experience including recent graduates and those who had been teaching for over twenty years. These teachers worked at schools that had only just implemented SSP, and those that had been implementing the program for at least five years. When I compared the pedagogy I observed the teachers using to implement SSP activities with their years of experience, I found that, although less-experienced teachers were less likely to have introduced a socially-critical pedagogy, level of experience in terms of either years of teaching, or years of implementing SSP, did not predict a teacher's ability to implement socially-critical pedagogy.

Observations of novice teachers by other researchers (e.g. Grossman, 1990; Korthagen, 2001b; Miles & Cutter-Mackenzie, 2006) suggest that, as in this research, less-experienced teachers are not always able to act as agents of change. Developing and establishing classroom practices are demanding tasks that often lead novice teachers to conform to the dominant practices in a school rather than work to introduce new pedagogies they may, or may not, have practiced during their training (Korthagen, 2001b). The pressure to conform to the established practices within a school work environment was highlighted by Julia, who upon joining the school, found herself conforming to a pedagogy she recognised as out-dated and inadequate. She described

planning meetings organised by more-experienced teachers: "week 1, let's do the life cycle of frogs, week 2, let's do the life cycle of chickens, every week we'd have the worksheets…all the grades did the same thing each week" (T:16/11).

However, that is not to say that less-experienced teachers did not contribute in a valuable way to the implementation of SSP. Helen noted that younger, less-experienced teachers were most enthusiastic about SSP and excited by the opportunity to develop and share new ideas. She reported that the more-experienced teachers were better able to find ways in which to most effectively put these new ideas into practice. Helen suggested that the best way in which to implement SSP throughout a school was to establish a collaborative work environment in which teachers with different levels of experience worked together: a notion not completely dissimilar to the benefits of multi-age learning activities of a socially-critical pedagogy. The idea that successful educational change is best achieved through a strategy of teacher collaboration is not new (e.g. Carson, 2007; Fullan, 2001; Greenfield, 2005), and reflects the notion that work place culture, not educational policy, determines the effectiveness of any change process (Carson, 2007). Greenfield (2005) suggested that:

> one of the biggest challenges that successful leadership in schools entails [is] to encourage and support collaboration among teachers that results in improved teaching practices and desired learning outcomes for children, that is, to develop the school as a community of professionals working together to serve children well (p.246).

6.7 RHETORIC, REALITY AND THE NATURE OF EDUCATIONAL RHETORIC–REALITY GAPS

My analysis of the rhetoric of the participants indicated that both the principals and teachers had a good understanding of the future-oriented and socially transformative outcomes of SSP, and agreed that these fulfilled democratic purposes of education. Similarly, both principals and teachers had a good understanding of the differences between a neo-vocational pedagogy and the socially-critical pedagogy encouraged by SSP. However, one significant difference between the principals and teachers related to their motivation for implementing SSP. The teachers implemented SSP in response to their principal's directions, with the view that the program would enable them to achieve the socially transformative educational outcomes they identified in SSP documents. The principals on the other hand, stated that their decision to implement SSP was based not solely on the nature of its educational outcomes, but for its potential as a vehicle for pedagogical change. Irrespective of these divergent motivations, the teachers believed that they had permission to implement SSP, and that socially-critical pedagogy was the best way in which to achieve the educational outcomes of SSP.

As outlined in Chapter 2, SSP documents provided a detailed sequence of activities and goals to assist schools and teachers. The teachers were also tutored and attended a variety of

professional development sessions, many of which were undertaken in their own classrooms. In other words, not only did the teachers have permission to implement SSP, they received significant professional and personal assistance to introduce the necessary socially-critical pedagogy. Despite that, figures 6.2 and 6.3 show that all but two of the teachers chose to implement SSP with pedagogy other than the socially-critical approach advocated by SSP and their principals.

My analysis of the rhetoric of the research participants indicated that a teacher's knowledge of the educational outcomes of SSP and of the characteristics of a socially-critical pedagogy did not predict the presence of a rhetoric–reality gap. Similarly, neither the lack of permission, nor the absence of personal and professional assistance for a teacher explained the prevalence of rhetoric–reality gaps. A comparison of pedagogy used with years of experience indicated that although less-experienced teachers were less likely to have introduced a socially-critical pedagogy, level of experience in terms of either years of teaching, or years of implementing SSP, did not indicate if a teacher would implement socially-critical pedagogy, and therefore, did not predict the likelihood of a rhetoric–reality gap. These factors therefore represent aspects of the implementation of SSP which did not significantly contribute to the nature of the rhetoric–reality gaps that I identified.

Thus, in order to answer the research question 'What is the nature of an educational rhetoric–reality gap?' it was essential to identify those aspects of the implementation of SSP that significantly enabled and/or constrained teachers' practices. The strategic cases indicated that the practicalities of undertaking a socially-critical pedagogy that most strongly influenced teachers' ability to implement SSP included: access to suitable learning spaces; the effects of routine and time; and the availability of other teaching and learning resources. My analysis of the role of each of these in the development of the rhetoric–reality gaps represented by the neo-vocational practices of some of the teachers is presented in Chapter 7.

7 ONTOLOGY IN-SITU AND EDUCATIONAL RHETORIC–REALITY GAPS

7.1 INTRODUCTION

In the previous chapter I identified the nature of both the rhetoric and reality used to define a rhetoric–reality gap in the context of the implementation of SSP. I identified four strategic cases: Cathy and Karen, who effectively implemented SSP through a socially-critical pedagogy; and Lisa and Elizabeth, whose attempts to implement SSP through a neo-vocational pedagogy were shown to represent educational rhetoric–reality gaps. As explained in Section 4.3, the discussion in this chapter will focus on the insights I gained from these teachers' stories (Figure 6.2).

In this chapter I directly address the research question 'What is the nature of an educational rhetoric–reality gap?' Giddens' (1984) ontology in-situ framework (see Section 3.14.2) focused my analysis on the critical elements of structuration that underpinned the teachers' practices, and therefore contributed to the development of educational rhetoric–reality gaps. I discuss specific aspects of the duality of agency and structure which emerged from the data as significant with respect to the differences between cases of best practice and those which represented rhetoric–reality gaps, including: learning spaces; routine and time; and other resources.

7.2 LEARNING SPACES

Socially-critical pedagogy requires students and teachers to not only re-define their roles in the learning process, but to re-define what constitutes a learning space. The rhetoric–reality gaps that I observed indicated that some teachers implementing SSP were unable to re-define their practices in these ways. My analysis of strategic cases provided valuable insights into the ways in which learning spaces both shaped, and were shaped by, teachers' practices. Although all learning environments incorporate a range of both social and physical aspects, the term learning space is used here to refer to just the physical attributes of a learning environment.

The notion of learning spaces was a prominent theme in SSP documents and the rhetoric of both the principals and teachers. It reflected an understanding that if socially-critical pedagogy was to become widely and effectively implemented, the design of new educational learning spaces must incorporate "an awareness of the need for diverse types of learning spaces to offer multiple approaches to the acquisition of different sorts of knowledge or skills, and a greater emphasis on environments that recognise learner–learner interactions as well as learner–teacher interactions" (Gifford, Morrison & Facer, 2006, p.9). I found that the development of new learning spaces was upheld as important evidence of schools' progression towards the implementation of SSP,

and considered a necessary resource for motivating and enabling teachers to undertake socially-critical pedagogy.

The notion that learning spaces are critical to achieving particular educational outcomes is not a new idea. For example, Lippmann (2002) argued that traditional classrooms represent learning spaces designed to accommodate the "short term information mastery goals" of a traditional neo-vocational pedagogy, characterised by "a single adult interacting with many in relative impersonal social relations in which social rules, principles, and guidelines govern the activity" (p.5). Similarly, Van Note Chism noted that "traditional classrooms tend to be designed on the basis of transmission theory whose built pedagogy says that one person will 'transfer' information to others who will 'take it in' at the same rate by focusing on the person at the front of the room" (cited in Gifford et al., 2006, p.9). Lippmann (2002) believed that such learning spaces were designed primarily to "control behaviour" (p.5), with the effect that they "reinforce[d] for children that they have little power to make changes in their daily lives, affect their environment, or [have] opportunities to examine alternative ways of living" (p.5). As discussed earlier, in light of these ideas, the principals often justified their decision to implement SSP according to the need to develop learning spaces as vehicles for change, or to use existing spaces, as every space is a learning space (see sections 6.3.1 and 6.3.2).

7.2.1 Learning spaces: vehicles for change

At many schools, the impending building of new facilities was an important factor in the decision to implement SSP, and reflected the principals' beliefs that new learning spaces would motivate teachers to embrace pedagogical change. However, many of the teachers indicated that new learning spaces were more closely related to necessity than motivation. Lisa for example, was adamant that she was unable to change her well-established neo-vocational pedagogy to a socially-critical pedagogy until she had access to what she considered to be an "ideal classroom" (T:17/10). She described such a learning space as still needing "four walls" but which also provided "access straight out into outdoor learning areas", as "I'd love to have an area where you could work outdoors" (T:17/10). Barrett (2007) notes that the "ability to take students outside" is commonly "cited as a problem" by teachers questioned about their inability to implement effective environmental education. However, as Lisa's school had recently completed developing a range of outdoor facilities, including a frog pond, and native and vegetable gardens, and was situated near a variety of community and natural spaces, Lisa's notion of what was required to work outdoors was not easy to determine. Her comment that she could not expect students to sit outside in the "direct sun" (T:17/10) may have indicated concerns regarding safety, but this was not supported by a previous decision to allow students to walk along the local river for a water quality project. Alternatively, this comment may have indicated that Lisa would merely transfer existing practices into an outdoor setting rather than implement more participatory or socially-critical approaches. However, Lisa also commented on the way in which the layout and design of the current school buildings and classrooms made

it difficult for her to alter her existing pedagogy. In particular, she noted the necessity to be constantly "moving rooms" or "moving furniture" (T:17/10) in order to accommodate the activities she believed to be best suited to a socially-critical pedagogy. She hoped that new classrooms would enable her to "accommodate" opportunities for shared learning through interaction between classes (T:17/10).

Lisa's case highlighted a disconnect between the principals' rhetoric regarding the need to provide learning spaces as motivation for pedagogical change, and the teachers' references to the lack of appropriate learning spaces as justification for not being able to implement pedagogical change. In Giddens' terms, Lisa's access to a range of new and different learning spaces suggested that her rhetoric concerning her inability to undertake change reflected a discursive consciousness (Figure 6.1), that is, a verbal justification that reflected underlying values that prevented Lisa from implementing socially-critical pedagogy, not a lack of learning spaces.

Like Lisa, Elizabeth indicated that Mountain Primary had developed a wide range of learning spaces. She proudly explained how important the kitchen and native gardens with shaded courtyards and outdoor seating were in demonstrating Mountain Primary's ability to implement SSP. However, her use of these facilities, along with the multitude of easily accessible community and outdoor learning spaces close to the school, was limited to augmenting the knowledge acquisition component of pre-established curriculum projects (Figure 6.2). Although Elizabeth did indicate that some aspects of the learning spaces she used would benefit from better design, for example, allowing her students to share work with other classes depended on "if it's quick and easy to get to that room you can do it" (T:14/11), unlike Lisa, she did not equate her use of a neo-vocational pedagogy to inadequate facilities. In other words, both Lisa and Elizabeth demonstrated that the provision of a range of learning spaces with the physical or structural features conducive to SSP-related activities did not guarantee that teachers could, or would, implement a socially-critical pedagogy.

7.2.2 Every space a learning space

The strategic cases suggested that those teachers who claimed to have inadequate learning spaces often made little effort to alter their teaching environment, while those who most successfully utilised a range of learning spaces, irrespective of the age or design of their classroom and school facilities, made conscious and deliberate efforts to either adapt each learning space to student needs, or adapt their pedagogical approach to make the most of the learning space at hand. In other words, the ability to use any space as a learning space depended on teachers' agency.

Both Cathy and Karen utilised existing learning spaces at their schools in order to implement SSP through socially-critical pedagogy (Figure 6.2). Cathy enjoyed a school environment which, although not extensive, was well-designed to incorporate areas of native gardens and

natural bush land. Although Cathy's approach to SSP incorporated projects which focused on the use of these outdoor areas, as well as a variety of learning spaces outside the school grounds, the majority of her work was based in a relatively small and traditional classroom equipped with the usual array of student furniture, book cases, cupboards and a white board. Unlike Lisa, the structural constraints of a traditional classroom learning space did not constrain her ability to implement SSP, to the extent that her practices exemplified a socially-critical pedagogy. Cathy understood that *any* space could become a space for learning if it met the needs of students: a belief supported by the notion that learning space "is first and foremost about education, not architecture" (Gifford et al., 2006, p.3).

Cathy used a socially-critical pedagogy to facilitate student–student interactions in her traditional classroom, by encouraging students to negotiate, collaborate and cooperate in organising the learning space in any way that met their needs. As a result, Cathy's classroom represented a constantly changing learning space quite unlike the static and uncompromising setup of Lisa's classroom. Cathy actively invited students to identify potential learning spaces and to find ways in which to utilise them, stating that "what we've found [is that] things that have sort of cropped up since we started [SSP] have been fantastic programs, for instance, our nesting box program…initiated by one of the year four girls" (T:22/11), which involved a science study of birds in a previously unused area of bushland along the school boundary. In contrast, Lisa noted that students were not encouraged to participate in the development of learning spaces at her school, stating for example: "we've got some veggie gardens up the back now, but I don't know where that idea came from, it just seemed to appear one day…I think that it was a parent [who] did it…I don't really know where the veggie garden came from" (T:17/10). Cathy demonstrated that the most effective development of learning spaces occurred when teachers enabled students to negotiate and cooperate in the development of those spaces—a central element of effective socially-critical pedagogy and SSP (Chapter 2).

On the other hand, Karen taught within the most unique learning spaces of all of the teachers: a classroom within the grounds of a nature park. Although Karen's expertise was in ICT education, she incorporated a wide range of exciting and unusual outdoor and real life learning experiences which she made possible by utilising the nature park as a learning space. In other words, the learning spaces of the nature park enabled Karen to implement a socially-critical pedagogy because Karen chose to make use of the opportunities those learning spaces offered.

The strategic cases suggested that neither the provision nor lack of learning spaces conducive to the requirements of SSP could predict the willingness or ability of teachers to implement SSP through a socially-critical pedagogy. However, there was anecdotal evidence that learning spaces did have some influence on teachers' practices. This was most clearly indicated by Karen's reports of teachers who accompanied their students to EVNP. Karen observed that most of her colleagues found these learning spaces to be "extremely threatening" due to "the

fact that we even just walk out the front gate…the fact that we're here in this environment" (T:30/10). She reported that those teachers were not only unable to cope with learning outside the school, but were particularly concerned about the lack of facilities such as four-walled classrooms and bells to indicate lesson times. For those teachers, the learning spaces provided by EVNP constrained their ability to implement any pedagogy, not just the socially-critical pedagogy encouraged by SSP. This supported the notion that many teachers defined their practices by the well-established routines they had developed in their familiar learning spaces, and that "teachers' fear of launching into the unknown" (Trautmann & MacKinster, 2005,19-23 January, p.1) rendered such well-established teaching practices difficult to change (see Section 6.9).

However, at Mountain Primary, the presence of some schoolyard facilities did encourage teachers to move away from a strictly neo-vocational pedagogy. I observed prep-grade students learning the mathematical concept of measurement, using such things as chicken legs and water weeds in the kitchen garden. It was evident by the constant stream of questions from students and the freedom they felt to interact with others as they moved around the learning space ensured that learning from this lesson was significantly broader than a single mathematical concept. The teacher commented that her use of the kitchen garden for this activity resulted from her observation that students enjoyed the experience of learning in a different environment. The use of this learning space facilitated a degree of pedagogical diversity, as both teachers and students responded to their physical surroundings.

7.2.3 Learning spaces, teacher practices and rhetoric–reality gaps

SSP was not intended to be undertaken only by schools with extensive facilities or expansive grounds, or by those intending to re-build. SSP encouraged all school communities to work collaboratively with students to not only identify potential new learning spaces, but most importantly, to transform the way in which teachers and students interacted within any learning space. As identified by teachers, the socially-critical pedagogy embraced by SSP required students and teachers to not only re-define their roles in the learning process, but to re-define what constituted a learning space. In light of this, it was reasonable to expect that rhetoric–reality gaps in the implementation of SSP indicated that the teachers were unable to re-define their practices in these ways. However, in the rhetoric–reality gaps that I identified, the role of learning spaces was not universally significant.

The strategic cases indicated that, contrary to school principals' expectations, the provision of new and/or different types of learning spaces alone did not necessarily facilitate the implementation of a socially-critical pedagogy. Irrespective of the nature of the learning spaces available to a teacher, it was aspects of a teachers' agency that determined whether or not they successfully enacted a socially-critical pedagogy. Although learning spaces were important in assisting a teacher to practice in a particular way, they did not determine those practices. In

addition, and in line with Giddens' notion of the duality of structure and agency, some teachers' practices influenced the development of learning spaces. This was particularly relevant to the socially-critical pedagogy embraced by SSP, which encouraged students and teachers to actively participate in structuring their activities, and in so doing, identify and develop learning spaces that addressed their needs. In light of this, my analysis of the strategic cases suggested that neither the provision, nor lack, of learning spaces perceived to be conducive to the requirements of SSP could predict the willingness or ability of teachers to implement SSP through a socially-critical pedagogy. Thus, the rhetoric–reality gaps that I observed were not the result of the nature of the learning spaces in which teachers were asked to implement SSP. However, my analysis of the strategic cases showed that the teachers' interactions with different learning spaces were, in part, influenced by both routine and time.

7.3 ROUTINE AND TIME

In order to effectively implement SSP, the teachers were required to establish a variety of cooperative and collaborative relationships with other educators, students and the wider school community. In other words, SSP required teachers to establish a pedagogy, or a routine of practice, most conducive to providing socially-critical learning opportunities. For many teachers, this meant changing their previously well-established daily routine. The rhetoric–reality gaps that I identified indicated that some of the teachers were unable to do this.

Routines are unquestionably an essential part of daily life. As Giddens (1976) pointed out, routines, incorporating both established institutional processes and social customs and traditions, enable people to non-consciously act in ways that comply with social norms (see Section 3.4). Thus, each teacher's routine that I observed, in part, reflected their knowledge of the social norms associated with their work environment. The principals hoped that, by changing those social norms through the introduction of a new curriculum and new learning spaces, the teachers would be prompted, or motivated, to adjust their daily routines.

The belief that altering teachers' routines was a potentially difficult task was held by principals and teachers alike. Philip described "change" as "something that's very hard to do" (T:30/11) due to well-established teaching routines: "some [teachers] are very regimented in the way they like going about things" and that as a result, "curriculum development hasn't changed in an eon" (T:30/11). Fran suggested that well-established routines made changing pedagogy to be "especially challenging for teachers who have taught in the same classroom in the same way for twelve years or so" (T:2/11), as routines act to maintain the status-quo. She agreed with the principals' assumptions that a significant change in the work environment might provide the much needed impetus for change, by motivating and thereby enabling teachers to develop new routines or pedagogies. However, the rhetoric–reality gaps that I identified indicated that neither mandating curriculum (see Section 6.3.2), nor providing new learning spaces (see Section 6.8.3) motivated or enabled some teachers to alter their existing routines. Therefore, in

order to better understand the nature of rhetoric–reality gaps, it was important to investigate the nature of the pedagogies, as routines of practice, of the teachers. Analysis of the strategic cases indicated that the teachers described their pedagogy as either a routine defined by a strict adherence to time, or a routine defined by a flexible approach to time.

The pedagogy that incorporated the strictest adherence to time was that practiced by Elizabeth. Time was central to Elizabeth's work, both in terms of her interpretation and implementation of SSP. She described the educational outcomes of SSP as "not a 9–4 concept" but "a 24 hour concept" (T:14/11). While this description was not inaccurate, it did highlight Elizabeth's propensity to establish meaning founded on the basis of time. Elizabeth's description of her efforts to implement SSP reflected a well-established and precisely timed schedule for waste management. Waste management incorporated a timetabled series of tasks to be completed by students, based on the need to distribute and collect different types of bins from different areas of the school at specific times each week. Each task was timed, to ensure that it fitted precisely into Elizabeth's daily routine. She stated that "it's a huge task" to maintain such a routine, and that "it has to be well organised, otherwise it would really fall in a heap very quickly" (T:14/11). Elizabeth's approach to SSP highlighted her preference for a well organised, and therefore predictable, work environment.

Irrespective of Elizabeth's pedagogical preferences and/or practices, her case provided valuable insights into the potential of routines to influence educational rhetoric–reality gaps. Elizabeth initially developed the waste-management routine, in response to her previous principal's request, to enable Mountain Primary to satisfy SSP accreditation requirements. Elizabeth stated that "I wouldn't have chosen to [do this as] it's a huge task" and described the organisational and time demands of the waste management routine as an onerous task: "logistically it's full on" (T:14/11). These comments indicated that Elizabeth had developed her routine only because of the structural influence of the hierarchical management system of her work environment (Figure 6.1). Despite this, Elizabeth had chosen not to modify or abandon this routine even after the arrival of a new principal meant that SSP was no longer a school priority. In other words, there was a point in time at which Elizabeth considered it easier to maintain this difficult, but well-established, routine than to change it: the routine had become "institutionalized" (Fullan, 2007, p.65). Elizabeth's desire for a well-structured and predictable work environment supported by practiced daily routines outweighed her frustration or dislike of those same routines.

Elizabeth's case highlighted the effect of the strategy of establishing a new routine of practice in order to influence long term change. This strategy has been an important component of many social policy campaigns. Campaigns that attempt to provide information to encourage people to act in a particular manner are often not as successful as those which concentrate on getting the desired behaviours established, then explain why, as evidenced by the success of recent campaigns to reduce household water use in drought stricken Victoria (Kollmuss & Agyeman,

2002). However, Elizabeth's experience of trying to alter behaviour led her to a different understanding of this strategy. Elizabeth candidly assessed the effect of her waste management routine as a strategy for behavioural change as poor. She recognised that simply telling people, (in this case, students) to follow a routine, especially one which had been enforced from a higher authority (a teacher), did not ensure behavioural change. She noted that her efforts to reduce rubbish and improve the management of waste within the school had not been as effective as she had expected, and was reticent to introduce new or improved rules or policies: "you wouldn't just introduce it because it wouldn't work" (T:14/11). She believed that a higher level of compliance with the rubbish protocols within the school would require "more education…I think you really need to educate first" (T:14/11). This suggested that Elizabeth considered things such as increased awareness as essential in establishing a new behavioural routine, and supported the notion that a change in teaching or learning "presupposes that both teachers and students share a common understanding of the new patterns of behaviour" (Gynnild, 2002, p.301). Similarly, Elizabeth recognised the role of motivation in changing behaviour, explaining that that was why she had introduced the "golden wheelie bin award…for the class that has got the lowest amount of waste" and that "each week every child with a waste free lunch gets a chance to win a prize" (T:14/11).

The motivating factors (or possible sanctions; Section 3.11), other than the principal's directions, which enabled Elizabeth to alter her previous routine in order to accommodate the waste-management schedule, were not established by this research. It was evident however, that Elizabeth maintained a routine which was not only difficult and unpleasant to continue, but which addressed a program no longer considered a priority by her school. This suggested that she did not enjoy change and that in line with Giddens' ontological framework, found ontological security through the maintenance of a well-organised and therefore predictable routine. Elizabeth's case demonstrated that for many people the reality of a well-established routine, even if it is less than ideal, is easier to maintain than to change. This highlighted the potential of routines to contribute to educational rhetoric–reality gaps.

I found that the socially-critical pedagogy of SSP was most easily implemented by teachers, such as Karen and Cathy, who had a flexible approach to time as part of their usual routine of practice. This flexible approach also indicated that these teachers were more amenable to change. Unlike Elizabeth, Cathy and Karen both described their approach to SSP in terms of an open or negotiable timetable. Cathy for example, stated that she would happily abandon an entire learning program if students were demonstrating enthusiasm for an alternative activity that offered equivalent learning opportunities. She noted that this approach ensured that "there's something new all the time, and I think that's what the beauty of it [SSP] is, things crop up all the time" (T:22/11). In contrast to Elizabeth, Cathy indicated that such an approach was an essential contributor to her ontological security, stating that: "I couldn't do the same thing over and over and over and over again…I think I'd stagnate if I had to do the same thing over

and over again" (T:22/11). Not only did she indicate that a flexible routine "keeps life interesting" and "keeps me fresh" (T:22/11), but that this was essential for providing the best learning environment for her students:

> we have to be motivated to get the kids motivated, if we're not really excited about doing something, how can we make the kids excited about doing it, and I can't see that you can get excited about something that you've done twenty times before (T:22/11).

The most flexible attitude towards time, however, was demonstrated by Karen. At EVNP, Karen immersed herself and her students in the environmental realities of the out-of-school setting, stating that the "timetable is thrown in the wind, we don't have bells, we don't have loud speakers…I encourage children to work to their own time" (T:30/10). Karen understood that the timetabled approach of teacher-directed learning was not an effective approach. Within the time that students were present at the park, Karen provided support and guidance for students to participate in the activities, or learning opportunities, in which they were most interested. As many of those opportunities arose from unexpected invitations or events within the park, they could not be predicted or timetabled. Similarly, Karen accepted that the learning from such opportunities could not be predicted or timetabled. Karen's ability to accept a flexible and dynamic timetable enabled her students to work collaboratively with each other and a range of people from the local community. Students' ability to take advantage of interesting and authentic learning opportunities as they arose ensured that they were learning within a socially-critical environment.

As discussed in relation to learning space (see Section 6.8), Karen reported that many of her colleagues who accompanied their students to EVNP found the learning space "extremely threatening" (T:30/10), particularly due to the lack of facilities for organising time. Karen believed that most of those teachers sought a consistent and predictable work environment, and found the lack of school bells and the lack of times for specific forms of learning to be quite frightening. In other words, for some teachers, the physical aspects of a learning environment assisted them to undertake a routine dependant on organising time. Lisa was one of these teachers.

Lisa's perfectly organised classroom reflected her pre-planned pedagogy which, like Elizabeth's waste-management routine, was delivered in precisely timed portions. However, when asked what prevented her from implementing the socially-critical pedagogy that she recognised as essential for achieving SSP goals, Lisa stated "I think probably time" (T:17/10). This answer was consistent with comments from all of the teachers, irrespective of their chosen pedagogy, that insufficient time constrained their ability to improve or change their practices. This was supported by the suggestion that "environmental education theory, as it is now, is not sufficiently grounded in teachers' experiences and in what they feel schools can do or what the

school day is really like" (Robertson & Krugly-Smolska, 1997, p.323). Cathy for example, suggested that implementing SSP through a socially-critical pedagogy required her to establish and maintain collaborative relationships with people and organisations outside the school. This was not only the most difficult component of her work, but also required a significant investment in time: "time is definitely the killer—it really is" (T:22/11). Similarly, Fran reported that colleagues most resistant to introducing a socially-critical pedagogy actually feared the amount of time they perceived that such a change would require: "it's a fear rather probably than a resistance I think, a fear that they don't have time" (T:2/11).

However, time is often a reason cited by teachers for not undertaking new practices (see for example Barrett, 2007; Palmer, 1998; Tomlins & Froud, 1994). The perfunctory manner in which time was identified as a problem by the teachers implied that such complaints were almost unconscious responses to an expectation, that is, a perceived social norm that teachers were busy people who were always stretched for time. Lisa suggested that identifying time as a constraining factor was an "excuse" to explain ineffective or irrelevant aspects of a teaching routine, stating that change required "just re-organising the way things are structured or getting rid of things that aren't needed" and "leaving things behind that you don't need to be doing any more…that are blocking up the time, blocking up the space" (T:17/10).

The routines of practice that I observed reflected different ways in which teachers related to time, and different ways in which teachers utilised learning spaces to implement a pedagogy that supported their relationship with time. For some of the teachers, in the context of implementing SSP, these relationships resulted in a rhetoric–reality gap. However, that is not to say that routines should not be part of a teacher's practice. Routines are an essential part of every teacher's practice. Classroom routines, for example, ensure that students know how to handle normal daily occurrences: housekeeping routines enable students to manage the physical components of a classroom, such as where to locate different learning materials; management routines assist students to manage certain interactions, such as how to form a group; learning routines assist students to approach learning in specific ways, such as reading quietly before writing an answer; and discourse routines provide rules for verbal exchange, such as raising a hand in order to ask the teacher a question and listening quietly while others talk (Leinhardt & Greeno, 1986; Leinhardt, Weidman & Hammond, 1987). Such routines define the social norms of a classroom and ensure that students understand a teacher's expectations (Burden, 2003; Newsom, 2001; Savage, 1999). They therefore contribute to students' feelings of ontological security, and reduce the need for teachers to micro manage every aspect of a classroom.

The difference between the use of a neo-vocational pedagogy by Lisa and Elizabeth, and the use of a socially-critical pedagogy by Cathy and Karen, was not the presence or absence of these types of routines, but the effect of routines on what might be considered "patterns of thinking", that is, the manner in which routines "support and scaffold" specific patterns of thinking

(Ritchhart, Palmer, Church & Tishman, 2006, April 7-11, p.1). Both Cathy and Karen had taught their students to embrace patterns of thinking which incorporated the use of negotiation, collaboration and collaborative endeavour in order to identify: interests that may or may not be identical to those of their peers; ways in which to acquire information about those interests, and; engaging ways in which to demonstrate their learning. In other words, many of the classroom routines established by Cathy and Karen were not a reflection of "ordinariness, habit and ritual" but "practices crafted to achieve specific ends" (Ritchhart et al., 2006, April 7-11, p.5).

In the same way that teachers used routines to establish students' feelings of ontological security, it is easy to understand that routines were instrumental in assisting teachers to establish ontological security. My analysis of the strategic cases showed that educational rhetoric–reality gaps reflected the relationship between each teacher and the nature of the practice they were required to implement. The socially-critical pedagogy of SSP was most successfully implemented by the teachers for whom a flexible approach to time was part of their usual routine of practice. The teachers who practiced routines heavily dependent on time not only found the socially-critical approach to SSP unfamiliar, but seemed to consider the very notion of change to be challenging. Similarly, a socially-critical pedagogy was most successfully implemented by the teachers who designed routines that enabled students to embrace negotiation, collaboration and cooperative learning as part of their normal learning routine. The teachers who taught to routines heavily dependent on the continuous provision of directions to their students could not implement a socially-critical approach. The practices of these teachers were most likely to represent a rhetoric–reality gap. However, that is not to say that those teachers were incapable of change. As indicated by the development of the waste-management routine by Elizabeth, appropriate motivation (or sanction) could cause teachers to alter (or maintain) well-established routines.

Thus, although well-established routines employed by the teachers did contribute to the development of rhetoric–reality gaps, they did not fully explain such gaps. My analysis of the strategic cases indicated that in order to better understand the nature of rhetoric–reality gaps, it was essential to understand the ontological elements that most significantly motivated teachers to embrace change.

7.4 OTHER RESOUCES

In order to effectively implement SSP through a socially-critical pedagogy, many of the teachers were required to: re-define their roles in the learning process; re-define what constituted a learning space; establish a variety of cooperative and collaborative relationships with other educators, students and the wider school community; and in general, establish a routine of practice most conducive to providing socially-critical learning opportunities. The rhetoric–reality gaps that I identified indicated that many teachers were unable to do this. Most of these teachers suggested that their inability to implement a socially-critical pedagogy was due, in part,

to the lack of certain resources—a reason often offered by teachers to justify the lack of environmental education in schools (see for example Barrett, 2007; Palmer, 1998; Tomlins & Froud, 1994). Resources include; physical teaching and learning aids, such as science equipment, or allocative resources; and the expertise of others, or certain forms of authoritative resources (see Section 3.7). Several teachers attributed the lack of resources to insufficient funding.

7.4.1 Allocative resources

According to Giddens, an unequal distribution of allocative resources, such as equipment used for certain teaching and learning activities, can contribute to unequal human relationships, which in turn can influence a teacher's capacity to act in a particular manner (Giddens, 1979; Turner, 2003a). Several of the teachers commented on their perception of the inequality of the state education system in terms of allocative resources. Andrew, for example, lamented that his students "don't have the opportunity to use those kinds of things" that other schools could provide, particularly in terms of specialist science equipment such as microscopes (T:17/10). Other teachers considered that the lack of allocative resources contributed to them having insufficient time to plan and organise more effective teaching. Simon for example, noted that he would benefit from access to some "ultra organised cupboards with lots of stuff in them" stating that "a lot of my time in science is spent getting stuff together" (T:30/11). However, the lack of these types of allocative resources alone did not adequately explain the rhetoric–reality gaps that I identified. Even Elizabeth considered such resources unrelated to the implementation of a socially-critical pedagogy, stating that the potential for the lack of these resources to inhibit a teacher's practice: "would depend on what your goals were for teaching…if it was sharing of information and sharing of learning, and designing student-centred classroom tasks, no it wouldn't inhibit it at all" (T:14/11). Similarly, David circumvented a lack of physical resources through the implementation of a socially-critical approach which encouraged students to find ways of making their own equipment, negotiating for assistance, or raising funds to purchase necessary materials for SSP-related projects. He believed that this was a valuable approach which helped students develop a critical awareness of the real world, stating that "we don't want the kids to think everything's laid on for them…they've got to run what's going on out there" (T:24/11). Elizabeth summarised this ideal: "the whole idea about sustainability in environmental education is that you reuse and use, and use well the resources you've got, not go out and pluck new resources" (T:14/11). In other words, the degree to which any teacher had access to specific allocative resources neither enabled, nor constrained, their ability to implement SSP through a socially-critical pedagogy. Most of the teachers however, suggested that the most critical resources for implementing SSP were not of a physical nature, but included the knowledge and skills, or expertise, of others. These were authoritative resources.

7.4.2 Authoritative resources

According to Giddens, non-physical, or authoritative, resources related to an individual's capacity to influence, direct or organise various aspects of social interaction, such as time, space or association (Giddens, 1979; Turner, 2003a). The teachers' perceptions of time and space are discussed elsewhere (see sections 6.8 and 6.9). The notion that people were valuable resources, and that collaborative teaching and learning provided access to, for example, the expertise of others, was central to effectively implementing SSP through a socially-critical pedagogy. Such expertise was sought to assist teachers to improve their pedagogy and assist students to improve their learning. The former related to perceived level of teacher support, or association, discussed in Section 6.6.1 (Arts, 2000; Taylor, 2003), while the latter, discussed here, related to resources that students could access. In the context of SSP, students accessed such resources only when the teachers assisted them to participate in collaborative, community-based and multi-age learning experiences. However, despite the fact that the teachers indicated a good understanding of the ability of a socially-critical pedagogy to provide such student resources, few fully embraced such an approach.

My analysis of the strategic cases demonstrated that teachers who did most effectively embrace a collaborative teaching and learning environment, such as Karen and Cathy, did not believe that their students required additional allocative or authoritative resources. Karen's socially-critical approach to SSP centred on collaborative efforts between students and staff at EVNP. Students undertook a wide range of caretaker and scientific roles through working cooperatively and collaboratively with EVNP personnel, members of the public and various government agencies. As these students were participating in real world activities, the experts with whom they worked provided not just equipment, but also specialised knowledge, ideas and opinions. Karen used simple, non-resource dependent learning activities to assist students to maintain these relationships including the establishment of a postal network between students and EVNP personnel. This network facilitated an ongoing exchange of ideas and information between visits to EVNP. Cathy also assisted students to establish a range of collaborative learning relationships. In order to effectively develop a student-initiated bird breeding program, for example, Cathy assisted students to seek help from various educators and scientists with specialist biological knowledge and nest box building expertise. Although students applied for a grant in order to purchase materials for making nesting boxes, the project could not have progressed without the sharing of knowledge between students and bird experts. It was evident to both Karen and Cathy that the learning opportunities provided by these types of collaborative experiences far outweighed the benefits that just additional physical resources could achieve.

Some of the teachers used guest educators as an initial step in moving away from a neo-vocational pedagogy. Andrew and Lisa for example, asked field educators associated with a local water authority to direct certain science lessons, stating that: "we try and use these as much as possible, as much as we can, [be]cause obviously they know more about water than we

do" (Andrew, T:17/10). Similarly, Julia sought assistance from the science teaching staff at a neighbouring secondary school to enable her students to experience aspects of science she was not confident to teach. These experiences represented a significant change for teachers who, as eloquently expressed by Philip, previously believed "I am the font of all knowledge and I spew forth" (T:30/11).

However, other teachers identified the lack of student resources as a contributing factor in their inability to implement SSP through a socially-critical pedagogy. Elizabeth for example, stated that a lack of funds meant that she was unable to provide opportunities for students to participate in certain activities such as "research in a true scientific sort of way, or…hands on activities that involved excursions, or paid guest speakers" (T:14/11). This comment not only suggested that Elizabeth did not understand that science was first and foremost " a process of generating information" (Foulds & Rowe, 1996, p.16), but provided valuable insights into teachers' complaints regarding their inability to expose students to the expertise of others. Elizabeth had almost unlimited access to the school kitchen garden managed by an expert horticultural manager, and nearby state parks with dedicated education officers. Her belief that opportunities for students to learn from others required "paid guest speakers" (T:14/11) was shared by other teachers, including for example David, who wanted additional funds in order "to buy in people" (T:24/11). These comments suggested an unwillingness to assist students to negotiate and collaborate with others in order to establish relationships, from which learning from others would occur naturally. In other words, these teachers viewed funding as a means through which to provide resources for students, in terms of access to people, without having to significantly adjust their usual pedagogical routines. Money was viewed by some teachers as a resource that provided them with the power to avoid change.

Thus, despite the perceived disadvantages of an apparent lack of resources identified by some teachers, access to additional resources was not essential for implementing SSP. This research showed that teachers who most effectively implemented SSP, like Karen and Cathy, embraced socially-critical pedagogy as a way in which to establish cooperative and collaborative relationships which provided opportunities for students to learn through participation, that is, through the sharing of ideas and knowledge. These teachers did not rely on purchasing power to acquire people as resources, but assisted students to explore different ways in which to access the people, or knowledge, or skills, most suited to their interests and chosen projects. In contrast, teachers who tried to implement SSP through a neo-vocational pedagogy, like Elizabeth and Lisa, failed to assist or encourage students to access the expertise of even other people in their own school.

The strategic cases provided valuable insights into the complex relationship between authoritative and allocative resources, as experienced by students. Implementation of a socially-critical pedagogy meant that students gained opportunities to access a variety of both allocative

and authoritative resources, which increased their confidence in building relationships, and therefore assisted them to create further opportunities to access additional resources. This highlighted Giddens' notion of a duality between structure and agency, where the socially-critical pedagogy experienced by students, was shaped by the resources accessed, and in turn, influenced the type of resources sought (Giddens, 1984). In all cases, the teachers held the authority to give their students access to resources through implementing SSP, indicating that access to resources for students neither constrained, nor enabled, the implementation of socially-critical pedagogy by the teachers. In other words, the rhetoric–reality gaps that I identified did not reflect these teachers' access to resources for their students.

7.5 DUALITY OF STRCUTURE AND AGENCY AND EDUCATIONAL RHETORIC–REALITY GAPS

My analysis of the rhetoric and reality of SSP implementation by the teachers demonstrated the effect of the duality of structure and agency (Giddens, 1984) on teachers' practices, and provided an answer to the research question 'What is the nature of an educational rhetoric–reality gap?'

The teachers understood both the environmental and educational goals of SSP. The teachers' ideas regarding the potential for SSP to influence their own lives as well as the lives of their students and the broader school community demonstrated their understanding of the future-oriented and socially-transformative nature of SSP, and that it addressed purposes of education best described as democratic equality (Labaree, 1997). The principals shared these understandings, but indicated that their decision to implement SSP was also based on its potential to operate as a vehicle for pedagogical change. This highlighted the way in which different structural elements, in this instance a 'structured set', could represent different things to different people. In this instance, principals used their hierarchical position to define certain aspects, or rules, of the environment in which teachers worked. Irrespective of directions given by the principals and the rhetoric provided by SSP documents, strategic cases indicated that teachers approached the implementation of SSP in one of two ways: (1) teachers modified and adjusted the structural components of their working environment in order to enable them to engage their students through a socially-critical pedagogy, or; (2) teachers modified and adjusted the implementation of SSP to suit the structural components of their working environment.

Cathy, for example, did not permit the physical conditions of her work environment to constrain her use of a socially-critical pedagogy. She encouraged students to determine how to best utilise existing resources, and to identify and use new and different learning spaces when appropriate. Cathy also adopted a flexible approach to other aspects of her working environment, such as time. She indicated that she would only allow a specific curriculum to influence her teaching if students were engaged and learning, and would happily extend or

forego planned curriculum-based activities in response to students' learning needs and interests. Similarly, Karen encouraged students to take responsibility of their time at EVNP, not just in terms of planning their usual daily activities, but most importantly, in relation to identifying and creating opportunities to participate in, and learn from, real life experiences. In other words, both Cathy and Karen established a routine which embraced flexibility, openness to students' needs and interests, and a willingness to engage with the learning opportunities provided by real life experiences as they arose. Such routines were not defined by structured sets, rules or physical resources. Such routines established a social norm in which students attended school with the expectation that they were responsible for learning in an environment which incorporated a certain level of negotiation, collaboration and cooperation. These routines embraced the notion that new interests and opportunities, or changes, were an integral component of life and learning and school.

In contrast, both Lisa and Elizabeth permitted various structural elements of their work environment, particularly the physical aspects of their classroom learning spaces and the use of time, to define their pedagogy. Lisa and Elizabeth established routines in which curriculum-directed learning occurred through planned activities undertaken in set ways within certain learning spaces at specific times. Such routines established a social norm in which students attended school with the expectation that their teachers had determined what they would learn, how they would learn it, how long they needed to learn it, and where that learning would take place. The ability to maintain such a routine demanded that any additional or different activities were planned and completed within an allocated time. By definition, the social norm established by these routines did not encourage or embrace change, as even a small change had the potential to impact not only on the plans for a single day, but for an entire school term. Both Lisa and Elizabeth attempted to implement SSP through their existing routines.

In other words, these strategic cases demonstrated that, once established, a teacher's routine of practice effectively operated as a self-supporting, or self-fulfilling, system. Each routine defined the manner in which the teachers and students interacted with each other and the world while at school. Each routine defined the social norms for learning and teaching at school, which, when practiced, defined that routine. This is the essence of Giddens' notion of the duality of structure and agency (1984).

Although the rhetoric–reality gaps that I identified were formed by the practice of routines which demonstrated the way in which structure and agency operated as a duality, the duality of structure and agency did not cause these rhetoric–reality gaps. My analysis of the rhetoric and reality of the implementation of SSP by the teachers showed that neither the presence, nor absence, of ontological elements such as new and different learning spaces, physical resources, perceived principal and peer support, or even time, predicted whether or not teachers implemented SSP through a socially-critical pedagogy: the structural features of the school

work environment did not universally constrain, or enable, the teachers to implement a socially-critical pedagogy. However, my analysis of the cases indicated that each teacher's beliefs about the environment and education influenced their perception of SSP goals, whether or not they embraced SSP principles in their own lives, and the manner in which they chose to implement SSP in their classrooms.

Thus, the answer to the research question 'What is the nature of an educational rhetoric–reality gap?' is that the development of an educational rhetoric–reality gap, in the context of the implementation of SSP, is an issue of teacher agency.

In order to answer the research question 'How can educational rhetoric–reality gaps be reduced?' it was therefore essential to identify the critical aspects of agency that influenced the teachers' pedagogical decisions. My analysis of the teachers' agency, most particularly in terms of teachers' environmental ideology and educational ideology, is presented in Chapter 8.

8 IDEOLOGY, PRACTICE AND EDUCATIONAL RHETORIC–REALITY GAPS

8.1 INTRODUCTION

In the previous chapter I discussed how the nature of the educational rhetoric–reality gaps represented by the neo-vocational practices of some of the teachers implementing SSP was best described as an issue of teacher agency. My use of Giddens' (1984) ontological framework indicated that, in the context of the implementation of SSP, each teacher's personal values, attitudes and beliefs would have influenced their perception of SSP goals and their approach to addressing these goals through their teaching practices (see Section 3.12). Therefore, in order to answer the research question 'How can educational rhetoric–reality gaps be reduced?' it was essential that I investigate the ways in which the teachers used their agency when making decisions about their practices.

This chapter presents my analysis of relationships between the beliefs held by teachers, the values embedded within the goals of SSP and the practice of socially-critical pedagogy, and the manner in which the teachers chose to implement SSP. I discuss these aspects of teacher agency, particularly as revealed through my analysis of the strategic cases (Section 4.3; Figure 6.2), in relation to environmental and educational ideology, and relate the influence of these on the teachers' practices to Giddens' (1984) notion of the duality of agency and structure. I identify the need to more effectively define the notion of an educational rhetoric–reality gap, and identify potential intervention points for reducing the prevalence and/or severity of particular forms of educational rhetoric–reality gaps.

8.2 IDEOLOGY

The term 'ideology'[19], as used here, refers to the beliefs about the way in which a society "ought to function to support the livelihoods and/or aspirations of its members" (Sunderlin, 2003, p.14). Manno (2004) noted that the dominant ideologies of modern western societies "have been those that prescribe the role of the individual, the community, and the state in relation to the society-shaping forces inherent in capitalism" (p.158). Thus, in the context of this research, the environmental goals of SSP and understandings of issues arising from human–environment relationships, were most likely to be perceived through the lens of the well-established social norms of Australian society (Sunderlin, 2003). Similarly, the educational goals of SSP, particularly in relation to the need to implement a socially-critical pedagogy, were most likely to be perceived through the lens of the well-established social norms of the teachers' work

[19] The use of the term 'ideology' has a complex history which encompasses myriad definitions, a review of which is beyond the scope of this research. The definition adopted here was chosen for its ability to acknowledge and encompass the widest range of factors that influence and motivate educational endeavours in Australia.

environments. My analysis of the cases indicated that differences in the ways in which such issues were understood by the teachers reflected the degree to which they assigned intrinsic value to the natural environment (environmental ideology; a narrow view of ESD but one which reflects the SSP focus on environmental education, as outlined in Section 2.4), and viewed their role as a teacher (educational ideology). This was supported by the notion that beliefs, attitudes and values "underlie the stances teachers…adopt when analysing realities, challenging constraints, and promoting excellence for all" (Butcher & McDonald, 2007, p.12). Similarly, the role of the teachers' personal ideologies in the implementation of new curricula was highlighted by an investigation into reports of stress amongst teachers in the United Kingdom, which found that that "individuals' attitudinal responses to change are determined by the extent of compatibility between their own ideologies, values and beliefs and those reflected in the changes they encountered" (Evans, 2000, p.185). Investigating the environmental and educational ideologies of the teachers implementing SSP was therefore an important step in identifying factors that could influence the development of rhetoric–reality gaps.

8.3 ENVIRONMENTAL IDEOLOGY

Prior to implementing SSP, all of the teachers attended professional development sessions during which they explored the underlying environmental and educational values of the program. This was considered an important process, as implementing any "curriculum involves putting into action a system of beliefs. Therefore, when we engage in inquiry about curriculum, we examine our beliefs as well as our actions in the classroom" (Short & Burke, 1996, p.97). As presented in Chapter 6 (e.g. sections 6.3.1 and 6.4.1), my analysis of the rhetoric of the principals and teachers revealed the beliefs, and in particular, the environmental values, that they perceived to be embedded in the goals of SSP (see also discussion regarding the relationship between ESD and SSP in Section 2.4).

Cotton (2006) proposed that "it is possible that teachers' pedagogical and environmental beliefs are more important in guiding their teaching about controversial environmental issues than have previously been recognised" (p.69). Although the role of teachers' environmental ideologies in determining classroom practices is not well understood, it is true that "many environmental issues are controversial, at least in part, because of the differing attitudes and values held by interest groups" (Cotton, 2006, p.70). Thus, as the principals and teachers demonstrated a good understanding of the goals, and environmental values, of SSP, it was important to investigate the relationship between their pedagogical choices for implementing the program and their personal environmental ideologies, in order to determine if these relationships contributed to the rhetoric–reality gaps that I observed.

A detailed discussion of the nature of environmental ideology, a subject of continuing and vigorous debate (see for example, Keller, 2010; Rai, Thorheim, Dorjderem & Macer, 2010; Vincent, 2010) is beyond the scope of this research. However, as the analysis of cases indicated

that each teacher's practice reflected, in part, a relationship between their personal environmental ideology and that which they attributed to the goals of SSP, it is necessary to define my usage of the term environmental ideology.

An individual's environmental ideology reflects their beliefs, attitudes and values, and falls within one of two broad perspectives: an anthropocentric perspective, in which nature has only extrinsic instrumental value as a resource (e.g. economic, recreational, scientific, historical or religious) for the benefit of humanity; or an ecocentric perspective, in which nature has intrinsic value (value in and of itself) unrelated to its perceived potential to contribute to human welfare (Vilkka, 1997). Anthropocentric perspectives are particularly overt in capitalist western cultures where scientific and technological developments exploit natural environments for personal and commercial human interests. This is reflected by the rhetoric of sustainable development, described by Vilkka (1997) as representative of an "ideology of strong anthropocentrism which ignores our dependency on nature by mastering and dominating it" (p.71).

As outlined in Chapter 2, SSP documents framed environmental education as a future-oriented, socially-transformative activity that aimed to address certain aspects of current human–environment relationships. Teachers and principals in this research believed that SSP had been developed in response to concerns that humans were facing significant lifestyle and survival problems due to environmental damage caused by unmitigated and unsustainable use of natural resources (see Section 6.4.1). They believed that SSP framed these concerns as activities that were both suitable and accessible to students of primary schools, and that this provided the potential for SSP to influence dominant human–environment relationships (see Section 6.3.1). Teachers identified the socially-transformative nature of the goals of SSP as beneficial for both current and future human lives, as stated by Simon for example, for the "the needs of people" (T:30/11). All of the teachers identified anthropocentric values embedded in the goals of SSP. However, I found that the teachers who practiced neo-vocational and liberal-progressive pedagogies referred to the environment in a different manner to those who implemented a socially-critical pedagogy. This suggested that the implementation of SSP may have been influenced by the degree to which the environmental ideology held by each of the teachers correlated with that which they perceived to be embraced by SSP. In the next sections I discuss these ideas in relation to the use of the terms *the* environment and *our* environment.

8.3.1 *'The'* environment

Teachers who implemented SSP through neo-vocational and/or liberal-progressive pedagogies, and who supported the use of a knowledge-based science curriculum for environmental education, consistently objectified *the* environment and held environmental ideologies that most strongly embraced anthropocentric perspectives. Andrew, for example, attributed the need to establish a sustainable future in order to ensure the protection of human life. Fran agreed,

stating that she hoped to encourage students to make "changes that are…favourable to the environment", but that such changes shouldn't "mean that our lives are worse off" (T:2/11). She noted that although humans have "a responsibility to change the way we're currently operating for environmental reasons…we are part of the environment...so we want it in-check for ourselves…it's for selfish reasons as well" (T:2/11). Fran compared the understandings developed by students undertaking SSP to "having the right to looking after themselves and then having the right to a better world" (T:2/11). In other words, these teachers positively justified the goals of SSP as education for social transformation that would benefit humanity. They acknowledged the responsibility of humans in human–environment relationships, and recognised that their personal values, or environmental ideologies, could be considered in ways that were consistent with SSP goals.

However, one teacher in particular had significant difficulty aligning his environmental ideology with the goals of SSP. Simon believed that human needs must be the central focus of any education. In light of this, he was very concerned about participating in SSP due to:

> the negatives that come with the term environmentalist…I'm not the guy…who's going to rally if they don't shut the Gordon River Dam…I don't care if they cut some trees down, yeah, they're widening the road, I understand that, I'm not [going to] freak out cause they're cutting trees down…the needs of people I think have to be weighed very carefully against [environmental needs] (T:30/11).

I found Simon to be most eager to qualify his stance on environmental issues, particularly in relation to environmental activism, and his belief that human needs must always take priority. As SSP professional development sessions were always carefully managed to avoid creating the feeling that teachers or students were required to adopt such activist roles, Simon's comments most likely reflected deeply held beliefs, attitudes and values. Several researchers (e.g. Greenall Gough & Robottom, 1993; Robertson & Krugly-Smolska, 1997; Simmons, 1991) have suggested that teachers who consider environmental issues to be somewhat controversial may shy away from participatory learning activities that form part of any education *for* the environment. It is important to note that in this context, Simon's comments were directed towards environmental activism, not a socially-critical pedagogy, or "transformative teaching as a form of activism in teaching" (Matthews, 2005, p.95). Despite his strong feelings against environmental education, he did state that, having completed the professional development sessions, "I'm not really slanted in that direction [environmental education], but I am interested in that now…from a really balanced…kind of angle, which I think is important" (T:30/11). This suggested that Simon interpreted SSP as a framework that enabled him to, at least loosely, justify his participation in environmental education by balancing his anthropocentric values with the notion that environmental education could in some way benefit human lives. In other

words, professional development sessions may have assisted Simon to find a way in which to relate his values to those embedded in the SSP goals, as "changing teachers' perceptions and understandings of the subject being taught may well change the values they can emphasise in class" (Bishop, Clarke, Corrigan & Gunstone, 2005, p.158). However, the comment also suggests that, despite his anti-environmental views, Simon believed that he could implement SSP by maintaining a neutral, or 'balanced', position.

In a study of the way in which teachers incorporated controversial environmental issues into the teaching of geography, Cotton (2006) concluded that "teachers' beliefs are at odds with much published discourse on environmental education" as although the curriculum being followed advocated the "promotion of positive attitudes towards the environment, this agenda is not shared by teachers…[who] aimed at offering a 'balanced' picture of controversial environmental issues" (p.77). This suggested that teachers, like Simon, may have dealt with curriculum and educational goals which contradicted their personal ideologies by deliberately aiming to exclude values from their classroom practices. However, as noted by Cotton (2006), "teachers' beliefs about balance" are not only "highly complex" but also "problematic in terms of their potential for translation into practice in the classroom" (pp.72-73). As discussed in Section 2.4.4, the notion that "no education is politically neutral" (Wink, 2000, p.77) has been well established in the literature (see for example Fien, 1999; Schugurensky, 2002; Swain, 2005; Wink, 2000), and that as such, the "idea of maintaining a neutral position [in the classroom is] an illusion" (Cotton, 2006, pp.72-73).

Simon's case highlighted the fact that teachers are often expected to work towards goals that contradict their personal values. Simon explained that his values were not considered when his principal gave him the role of SSP coordinator at West Quay Primary:

> the principal chose a group of teachers to get involved with it [SSP]…I was chosen and Fran [a colleague] was chosen, probably because of our roles…and our grade levels. My role is science and that fits in quite well with it…hers is sort of an age group that this sort of works well with…grades 4–5…and I wouldn't say that it would have got very far without the school making it a definite goal (T:30/11).

Simon's comments provided valuable insights into the role of human values in educational change, particularly the relationship between the values held by school principals and teachers. As noted in Section 6.3.1, the principals were responsible for the decision to implement SSP. Simon's comments indicated that, as the goals of SSP did not reflect environmental ideologies held by teachers at West Quay Primary, it was being implemented only because the teachers were following their principal's instructions. These instructions, in turn, required the teachers to design learning activities for goals that contradicted their personal values. Simon, for

example, clearly perceived the form of environmental education encouraged by SSP to represent values held by those engaged in radical environmental activism, and which focused on the need to preserve the natural environment at all costs. Simon perceived this environmental education to place the needs of the environment before the needs of humans, and this contradicted his personal anthropocentric values. He found it difficult to justify his participation in the implementation of SSP, and this caused him to feel extremely uncomfortable in his role as coordinator.

When there is such a significant disparity between a teacher's values and the values they perceive to be embedded in the curriculum they are implementing, educational change may be unsustainable. This was highlighted by the strategic case of Elizabeth and the implementation of SSP at Mountain Primary School. As outlined in Section 5.5, despite the fact that Mountain Primary was awarded SSP five-star accreditation two years prior to my visit, neither the principal, Mary (newly appointed one year prior), nor the majority of staff, were aware of the program or its current status within the school. Elizabeth reported that SSP had been implemented by the previous principal who had had a personal interest in environmental issues. When I asked Mary for her permission to visit the school and talk to her about SSP, she responded "what is this sustainable schools program?" and "I don't know if we do this thing here" (Mary, T:2/11).

Elizabeth admitted that her involvement with SSP was neither voluntary nor enjoyable, and that she "wouldn't have chosen to" participate if she had been given the choice (T:14/11). She also indicated that other staff at Mountain Primary had stopped implementing activities they had set up as part of SSP, such as the "energy-wise education program" (T:14/11). The reasons for the inability (or unwillingness) of the teachers to continue the educational changes established as part of SSP under the auspices of the previous principal were not fully investigated. However, during informal discussions with several of the teachers at Mountain Primary, I surmised that, like Simon, they perceived the values embedded in the goals of SSP to contradict both their own environmental ideologies, and their understanding of what constituted primary school education. Both Elizabeth and Mary were somewhat dismissive of the concept of environmental education. The notion that teachers may not consider environmental education to be a valid educational endeavour has been noted elsewhere. For example, when investigating ways in which to develop pre-service teachers' skills in environmental education, Cutter (1998) found that an overwhelming proportion of the pre-service teachers did not actually consider environmental education to be an important component of school education. In other words, the teachers at Mountain Primary, like those at West Quay Primary (see Simon's comments above) had implemented SSP only to fulfill a principal's expectations. Although those expectations reflected that principal's personal values, they did not necessarily reflect the values held by the teachers, and as a result, the teachers reverted to their original practices once those expectations were removed.

In addition, Simon's statement that "my role is science and that fits in quite well with it [SSP]" (T:30/11) highlighted another way in which values may have influenced the teachers' practices, and provided an example of the manner in which Giddens' (1984) notion of the duality of structure and agency related to the development of educational rhetoric–reality gaps. Simon's statement reflected the notion that "teachers' values in the classroom are shaped to some extent by the values embedded in each subject, as perceived by them" (Bishop et al., 2005, p.158). Although research regarding the role of teachers' values in the teaching of environmental education is limited, the role of teachers' values in the teaching of mathematics and science is a growing field of research (e.g. Bishop et al., 2005; Bishop, Gunstone, Clarke & Corrigan, 2006; Clarkson et al., 2005). Such research has focused on the notion that teachers' personal values not only influence their views about a subject, but also their pedagogical choices for that subject. In turn, the values embedded in the pedagogical approaches chosen by teachers portray certain sets of values about a subject to their students (Bishop, 2008; Chin, Leu & Lin, 2001). Simon held strong anthropocentric environmental values and consistently objectified *the* environment. Not only did those values influence Simon's perceptions of the values embedded in the goals of SSP, but also led him to consider environmental education to be part of a traditional science education, that is, education *about* the environment (Lucas, 1980) (see Section 2.3.1).

As discussed in Section 2.4.2, although science knowledge and environmental education should not be considered mutually exclusive (Gough, 2007, 25-29 November), it is true that a traditional science pedagogy, represented here by a neo-vocational approach, does not support the future-oriented and socially transformative outcomes of SSP. The use of a neo-vocational pedagogy not only objectifies the natural environment, but separates humans from their environment and segregates facts from values (Scott & Gough, 2004). I found that the teachers who consistently objectified *the* environment were those who also employed a neo-vocational pedagogy to teach *about* the environment as part of a science curriculum. In turn, and as predicted by the notion of the duality of structure and agency, the conventions of science education encourage those teachers to maintain their objective view of *the* environment through their practice of education *about* the environment (Giddens, 1984).

I found that the teachers who consistently objectified *the* environment incorporated SSP into a traditional science education for one of two main reasons: (1) in order to implement SSP as education *about* the environment, thereby supporting their personal anthropocentric environmental ideology; or (2) as part of the science curriculum as directed by their principal. While Simon chose to implement SSP as a science subject that reflected his strong personal environmental values, Lisa had been instructed by her principal to incorporate SSP into science-based lessons.

Unlike Simon, Lisa indicated that her personal environmental values were not necessarily violated by her principal's directions to implement SSP, stating that she had "always been into the environment…and recycling" and that therefore "it's really good that the school is taking it [SSP] on" (T:17/10). However, the principal and SSP coordinator at South Bay Primary indicated that Lisa was the only teacher at South Bay Primary to have undertaken any university-level science learning, and was therefore responsible for the planning and the teaching of science throughout the entire school. She indicated that although "we've tried to integrate as much as possible, so we're mixing it [SSP] into maths, and reading and science", the majority of SSP-related activities were undertaken in science lessons, and that this was her responsibility (T:17/10). This seemed to contradict the intentions of Lisa's principal, Helen, who stated that her decision to implement SSP was to provide "teachers with a hook: a new way of teaching with a new way of learning", as she viewed SSP as a "vehicle for whole-school change" (P:21/11). The underlying reasons for Helen's decision to give this responsibility to Lisa were not clear, and may have related to her understanding of the ability and/or willingness of the teachers at this school to engage with the program. However, irrespective of the reasons for Helen's decision, I found Lisa's pedagogical practice to be strongly neo-vocational (see Figure 6.2); an unequivocally teacher-directed practice (see Section 5.3) that contradicted all of the socially-critical goals of SSP. Thus, like Simon, Lisa implemented SSP as science education, and in so doing, adapted SSP to fit her understanding of how science should be taught, that is, her tacit knowledge of the practices of science (see Section 3.4). In turn, and as predicted by the notion of the duality of structure and agency (Giddens, 1984), Lisa's tacit knowledge of the practices of science education encouraged her to maintain her objective view of *the* environment and her practice of education *about* the environment. The relationship of a teachers' tacit knowledge of educational practice to the development of rhetoric–reality gaps is discussed in Section 8.7.

Contrary to the teachers who consistently objectified *the* environment and implemented SSP through a neo-vocational pedagogy, I found that the teachers, namely Karen and Cathy, who referred to *our* environment, or, in relation to students, *their* environment, also implemented SSP through a socially-critical pedagogy.

8.3.2 *'Our'* environment

Karen and Cathy referred to the environment in a variety of ways, including as *our* environment, or in relation to students, as *their* environment. Both teachers positioned humans as custodians of the environment in phrases such as "*we* have not respected *our* environment" (Karen, T:30/10) and we must "make less of an impact on *our* environment" (Cathy, T:22/11). This was also evident in Cathy's comments regarding the educational outcomes of SSP for her students: "to understand *their* environment, to learn about *their* environment, to have respect for

their environment, and to actually act on that, and therefore, in the long term make changes to the world—starting with *their* world" (T:22/11)[20].

Despite referring to the natural environment in this manner, neither Karen nor Cathy disagreed with the environmental ideologies held by the teachers, such as Lisa, who referred consistently to *the* environment. Both Karen and Cathy used the terms *our* and *their* environment to represent anthropocentric environmental values which positioned humans as the owners and controllers of natural environments. Karen, for example, indicated that her environmental ideology was not that dissimilar to Simon's belief that human needs take precedence over the needs of the environment, stating that she aimed to ensure that students understood that they "can learn and can make a difference without really…making huge changes to their lifestyle" (T:30/10). However, unlike Simon, both Karen and Cathy reported that implementing SSP, through a socially-critical pedagogy, enabled them to embrace their personal environmental ideologies through their teaching role. This indicated that, in light of my finding that all of the teachers understood the environmental and educational goals of SSP, as outlined in SSP documents (Section 6.4.6), the generally anthropocentric environmental ideologies held by Cathy and Karen differed to those held by teachers such as Lisa and Simon. This supports the notion that an individual's environmental ideology cannot be simply identified as purely anthropocentric or ecocentric. The environmental ideologies held by these teachers are better understood as relatively more- or less-ecocentric. In this case, the environmental ideologies held by Karen and Cathy were anthropocentric in nature, but more-ecocentric than those held by the other teachers. A detailed discussion of the presence and/or validity of a "two-factor ecocentric/anthropocentric structure of beliefs about the relations between people and their environment" (Amérigo, Aragonés, de Fructos, Sevillano & Cortés, 2007, p.102) is beyond the scope of this research, but represents an ongoing focus for research (e.g. Dunlop, van Liere, Merting & Jones, 2000; Milfont & Duckitt, 2004; Schultz, 2001; Thompson & Barton, 1994).

Unlike Simon's idea that he could implement SSP through a 'balanced' stance, both Cathy and Karen found ways in which to incorporate their ideas regarding environmental values into their classroom practices. Their approach reflected Kelly's (1986) notion of committed impartiality, described by Cotton (2006) as "taking a committed stance while remaining open to alternative views, and avoiding imposing values on the students" (p.77). Karen, for example, described her approach to SSP as: "I am trying to teach the word respect…and with that word, everything in my opinion that's environmental comes under that banner" (T:30/10). Karen indicated that focusing on respect was not only important in terms of achieving student learning outcomes, but also in terms of satisfying her personal teaching goals:

> we have not respected our environment and that's why we've dug ourselves a hole, mankind…the flora and the fauna…not just the big

[20] Italics in these quotes my emphasis

> creatures of the planet…the smallest ones are critical in the cycle of life because if you break one chain you have repercussions, and that's what we've been doing…if I can impart that to children, well then I have made a difference (T:30/10).

Karen indicated that SSP provided an opportunity for her to not only make "a difference", but perhaps to take responsibility for her own role in the detrimental effects of human–environment relationships. Similarly, Cathy indicated that SSP enabled her to justify her role as a teacher by demonstrating that she was at the "forefront" of addressing issues she considered to be important. She noted that her participation in SSP professional development sessions had greatly affected her:

> I look at the world in a totally different way…turning off the lights and not having as long a shower…it really does make you more aware…it affects your whole life, I'm much more aware of environmental issues now than what I was before I did the program (T:22/11).

Thus, unlike Simon and Elizabeth, Karen and Cathy recognised that some of the values that they perceived as being embedded in the goals of SSP correlated closely to their personal environmental ideologies; there was a high degree of value "congruence" (Coburn, 2004, p.277). Congruence, that is, the notion that teachers are "more likely to engage with new ideas or approaches, depending on the degree to which they…find ways to connect them with their pre-existing beliefs" (p.277) is discussed in relation to the development of educational rhetoric–reality gaps in Section 8.5.

My analysis of the rhetoric of the teachers indicated that they held environmental ideologies which, although best described as anthropocentric, reflected a range of ideals that could be scaled as more, or less, ecocentric. The teachers who implemented SSP through a socially-critical pedagogy held the most-ecocentric environmental ideologies, and justified their practices by relating their personal environmental ideologies to the environmental values they perceived to be embedded in SSP goals, or by interpreting the goals of SSP in ways that matched their own values. For some teachers, these values were not unique to environmental education.

Despite the obvious, and intended, relationship of SSP with environmental concerns, some teachers related their implementation of the program to personal values other than those directly related to an environmental ideology. David for example, stated that his motivation for implementing SSP was first and foremost:

> altruistic…to leave the world a better place…to build better pillars of society…it means leaving the community in a better way than you

> found it, not just taking up the environment and wasting space or using up the air, but actually contributing, actually making a difference (T:24/11).

In other words, David considered SSP a vehicle through which he could develop students' sense of social responsibility rather than address specific environmental attitudes. It is important to note that although David did not employ a socially-critical pedagogy, his motivation for implementing SSP was not inconsistent with the goals of the program, and was congruous with the aims of the liberal-progressive pedagogy he employed (see Figure 6.3). Both teachers and principals correlated the implementation of SSP with the notion of 'social responsibility'; particularly as it related to 'democratic equality' purposes of education (see sections 6.3.1 and 6.4.1). Philip, for example, stated that the implementation of SSP meant that "hopefully we're [at West Quay Primary] helping to produce responsible, ethical individuals" (T:30/11).

The ability of teachers and principals to relate the goals of SSP to the anthropocentric notions of 'social responsibility' and 'democratic equality', or to specific values such as 'respect', indicated that the goals of SSP could be interpreted in ways that appealed to a variety of personal values. Each of the teachers and principals chose to interpret the notion of sustainability, as represented by the environmental education advocated by SSP, in terms of ecocentric values (the environment is preserved because of its instrumental value), or, in terms of anthropocentric values (the environment is preserved for the central needs of humans) (Vilkka, 1997). Several of the teachers, including the strategic cases Cathy, Karen and Lisa, chose the latter interpretation of SSP goals. Thus, although a teacher's personal environmental ideology may have predicted the manner in which they chose to interpret the goals of SSP, it did not predict their ability to implement SSP through a socially-critical pedagogy, and therefore, did not adequately explain the presence of the rhetoric–reality gaps that I identified. In light of this, it was important not just to consider how the principals and teachers interpreted the goals of SSP, but to investigate how implementing SSP affected the values, beliefs and or attitudes of the principals and teachers.

8.4 SSP AND TEACHERS' LIVES

Giddens' (1984) notion of the duality of structure and agency suggested that not only would the principals' and teachers' values influence the manner in which they implemented SSP, but that their interaction with SSP would, in turn, influence those values. Helen, for example, attributed part of her decision to implement SSP at South Bay Primary to her environmental ideology. She strongly identified with the ideals and goals of SSP which she described as future-oriented education which aimed to ensure that the natural environment and the human life it supports will still be "here in 100 years" (P:21/11). However, she also reported that such a notion of sustainability "ties in with [my] own life" and that implementing SSP was "also about sustaining [my] own life" (P:21/11). In other words, Helen acted on her personal environmental

ideology. She aligned her role as an educator with her personal values by implementing SSP, and reported that her decision to implement SSP made her feel that she sustaining her own life.

The teachers' reflections of the SSP professional development sessions provided valuable insights into what they perceived to be the effects of their participation in the implementation of SSP. Cathy, for example, indicated that prior to the professional development sessions:

> I used to hear it [environmental messages], yes I was concerned, but I wasn't at the forefront of doing something with it, I am now, and I think that's made a huge impact on my life personally, my life as a teacher and my family life (T:22/11).

Cathy noted that the initial professional development programs not only increased awareness of current environmental concerns, but "had a huge impact on the staff as a whole…I think it made a huge impact when we did the…eco-footprint on each of the staff members" (T:22/11). In other words, Cathy saw that SSP provided opportunities for teachers to incorporate their new understandings, developed as they explored their own human–environment relationships, into their professional lives. Both Karen and Cathy reported that they felt empowered by their participation in the SSP professional development sessions, and that they viewed SSP as an opportunity to address their growing awareness and concern for issues arising from current human–environment relationships. Karen, for example, stated that "I see the sustainable schools program as…trying to empower teachers, or really teaching teachers to empower children" (T:30/10). I do not believe that either of these teachers considered SSP a cure-all solution, but rather an opportunity for them to contribute positively to both humanity and the environment.

Although neither Lisa nor Elizabeth reported being personally affected by their participation in SSP professional development sessions, other teachers reported that the SSP professional development sessions had generated a great deal of distress. This effect was felt most by Robyn and Anita. Robyn stated that although her participation in SSP had been initially directed by her principal, since the professional development sessions "I've started getting really worried about the world and everything and I just think ooh we're such wasters…I do want to stop this environmental problem that's happening at the moment" (T:9/11). She believed that her awareness of environmental issues had dramatically increased since participating in SSP, and that "it's scary, and I know at home, even my habits at home have changed…I'm really conscious, for instance when you go out for dinner or…take away, how much rubbish you are using…it does hit home" (T:9/11). Like Robyn, Anita noted that the "professional development sessions were…quite depressing at times" (T:9/11) and that she had begun to question the ability of any one person to actually make a difference. Anita went on to explain that these feelings extended beyond the classroom, as they were so "personally overwhelming…sometimes you go to the supermarket and you see those people who get their

plastic bags…you almost want to go and hit them over the head with something, and you sort of think…don't you get it?" (T:9/11). She indicated that "I was really interested in doing it [SSP]…I'm interested in those kinds of things, and tried to put some of those practices into my own life, and…we're being so bombarded by media…you almost feel guilty if you're not trying" (T:9/11).

Robyn and Anita's comments highlighted some unintended consequences of the professional development sessions. The CERES presenter who had conducted many of these sessions was both surprised and dismayed by these reports. Although the professional development sessions aimed to establish a "language of possibility", that is, the belief that each individual has opportunities for positive change (Fien, 1993, p.10; Wink, 2000) (see Section 2.4.5), these teachers' comments highlighted Giddens' (1979) understanding that any human action, irrespective of the underlying motivations, tacit understandings or deliberate planning, may create both intended and unintended consequences (see Section 3.4). In this case, the unintended consequences of feelings of helplessness and despair have been noted to occur in individuals as a response to their perception of a seemingly endless barrage of messages of environmental crises (Grun, 1996).

Thus, the teachers responded to the professional development sessions in very different ways. Although I could not establish a definitive cause and effect relationship, I found that teachers who successfully employed a socially-critical pedagogy to implement SSP, such as Karen and Cathy, reported feeling 'empowered' by the opportunity to address their personal concerns to minimise the effects of modern human–environment relationships. These teachers embraced a "language of possibility" in that they believed that SSP enabled them to make a positive contribution to society—a contribution that was congruous with their environmental ideologies. On the other hand, some of the teachers who attempted to implement SSP through a neo-vocational pedagogy, and in so doing, demonstrated a rhetoric–reality gap, indicated that the professional development sessions caused them to become anxious and guilty about the environmental effects of current human–environment relationships. Although these teachers acknowledged that their personal environmental ideologies were consistent with the values embedded in SSP goals, and recognised that these goals were best achieved through a socially-critical pedagogy, they were unable to act upon these understandings. As noted in Chapter 2, in relation to the development of environmental education, "too much environmental knowledge (particularly relating to the various global crises) can be disempowering, without a deeper and broader learning process taking place" that enables students to respond, through action, to their developing awareness and understanding (Sterling, 2003, p.19) (see Section 2.3). However, despite the fact that SSP provided opportunities for these teachers to act upon the new understandings gained from the professional development sessions, they failed to do so.

A detailed investigation of the degree to which the teachers' environmental ideologies were affected by their participation in the implementation of SSP, or the degree to which such effects enabled or constrained the teachers' ability to employ a socially-critical pedagogy, was beyond the scope of this research. However, in a study which compared the beliefs and practices of teachers in Hong Kong and England, Lee (1993) found that although teachers "espoused support for teaching attitudes of concern for the environment…[there was] little support for those teaching strategies that might enable teachers to achieve this aim" (Cotton, 2006, p.69). It was therefore important to investigate the relationship between the teachers' educational ideology and the manner in which they chose to implement SSP.

8.5 EDUCATIONAL IDEOLOGY

My analysis of the rhetoric of the teachers (Chapters 6 and 7) indicated that each teacher's beliefs influenced their perception of the enabling and constraining effects of the ontological elements of their work environment that they considered to be most critical to their ability to implement SSP. However, these beliefs did not adequately explain the development of the rhetoric–reality gaps that I identified. Further analysis showed that, compared with teachers who implemented SSP through a neo-vocational pedagogy, those who employed a socially-critical pedagogy held different educational ideologies, and therefore, different beliefs about their role as a teacher, supporting the notion that a teacher's practice reflects "not only the social and cultural context in which it takes place, but also individual considerations about what it means to be a teacher" (Michalak, 2007, p.77).

The classroom practices of teachers reflect a wide range of educational ideologies. The role of different educational ideologies, particularly in terms of their competing interests and relationship to the changing purposes of education, is the subject of ongoing discussion and debate (e.g. Goodwin, 2007; Gray, 2009; Harvey, 2005; Kemmis et al., 1983; Spring, 2004). However, as indicated in Chapter 6 (see also Figure 6.2), the educational ideologies central to understanding the teaching practices of the strategic cases and the development of rhetoric–reality gaps associated with the implementation of SSP, included the neo-vocational pedagogy employed by Lisa and Elizabeth, and the socially-critical pedagogy of Cathy and Karen. Each of these teachers' practices reflected, in part, a particular relationship between their personal educational ideology and that embedded in the socially-critical pedagogy encouraged by SSP. As indicated by the principals (see Section 6.3), the decision to implement SSP was, most importantly, to encourage teachers who consistently practiced a neo-vocational pedagogy to begin to use a socially-critical pedagogy[21]. However, the process of changing to a socially-critical pedagogy "requires practitioners to reconceptualise their curriculum and to question

[21] The characteristics of these pedagogies and how they relate to the implementation of SSP have been outlined in Chapters 2, 6 and 7. Figures 6.2 and 6.3 highlight the major elements of the pedagogies central to the discussions in Chapters 6 and 7.

prevailing practices. The issue is that socially-critical environmental education does not cohere, in many cases, with practitioners' theories of teaching, learning and curriculum" (Walker, 1997, p.158). I found this to be central to the development of the rhetoric–reality gaps that I identified.

Each of the teacher's educational ideology reflected their beliefs about what they considered to be the most important aspects of their role as a teacher. In the following sections I discuss these with respect to: student emotional wellbeing; student ability; assessment of student learning; and the manner in which the teachers utilised their power in the classroom.

8.5.1 Student wellbeing

Some educational rhetoric–reality gaps have been attributed to teachers' beliefs that proposed changes inhibited their ability to appropriately care for their students (Bailey, 2000). When considering the implementation of SSP through a socially-critical pedagogy, comments from some of the teachers suggested that they were concerned about how the authentic learning experiences encouraged by this approach would affect their students' emotional wellbeing.

The notion that "emotions are at the heart of teaching" (Hargreaves, 1998, p.835) was highlighted by Cathy's comment that teachers must manage myriad emotional issues each day: "there's just so many things you have to cram into your day…[including] your emotional problems with kids, and your emotional problems with parents" (T:22/11). Although Cathy's comments reflected the need for teachers to deal with their personal emotional wellbeing at school, teachers must also consider the emotional wellbeing of their students. A detailed discussion of the degree to which schools, and therefore teachers, are responsible for the development of students' emotional wellbeing, and the manner in which they should attempt to fulfill this responsibility, is beyond the scope of this research.

Student emotional wellbeing is, however, a contentious matter (Brunker, 2007). While Australian primary school principals are concerned about the ever-increasing demand for schools to accept a greater responsible for students' emotional development (Robson, 2007), many researchers have shown that improving student wellbeing leads to improved academic achievement (e.g. Brunker, 2007; Caprara, Barbaranelli, Pastorelli, Bandura & Zimbardo, 2000; Fook, Repetti & Ullman, 2005; Malecki & Elliott, 2002). Many aspects of the socially-critical pedagogy encouraged by SSP incorporated practices consistent with practices often associated with improving aspects of student wellbeing. Brunker (2007), for example, reported that student wellbeing, or "social emotional wellbeing" (p.2) is best developed through schooling which enables students to develop, and participate in, meaningful relationships with peers, teachers and the community (Brandt, 2003). She noted that all aspects of a learning environment can impact on student emotional development, stating that "it is crucial that everyone connected to schools recognise this role in order to ensure that both their explicit and implicit behaviours enable children to develop and experience positive social emotional

wellbeing" (Brunker, 2007, p.2). However, some of the teachers found that their interpretation of this responsibility constrained the manner in which they could implement SSP as they believed that some of the authentic learning experiences encouraged by a socially-critical pedagogy inappropriately compromised students' emotional wellbeing. This concern was best illustrated by the differences in the manner in which Elizabeth and Karen dealt with the topic of death with their students.

Elizabeth reported that teachers at Mountain Primary carefully managed the type of information shared with students, particularly regarding real life events in the kitchen garden. For example, the horticultural manager of the kitchen garden (Stephanie) explained that when a student found an injured bird in the school grounds and brought it to her; she took the bird and placed it out of sight until it died. She then informed students that the bird had recovered and flown away. Neither Elizabeth nor Stephanie believed that primary school students should be exposed to the topic of death. In contrast, Karen explained that all students, irrespective of age, should have opportunities to be engaged in authentic, real world learning, and that this meant that students should not shielded from the natural cycle of life and death. The following passage highlights the view of life obtained by groups of students involved in the artificial breeding program for an endangered species of bird at EVNP. Karen described events related to the first few chicks to hatch:

> They [park rangers] take it [chick] away from the parent, and they explain why they take it…they don't handle them unless they absolutely have to…they got an ostrich feather duster, and so if it was scared it would go under the duster…that went on for weeks and weeks and weeks and weeks…until one day…the little guy had got his neck caught…and had strangled itself to death…terrible thing…because we all know they're critically endangered and it's taken two years to actually get a live one…and then we said…let's not despair, we've got a couple of eggs…the next thing you know, the next egg has hatched at the wrong time…it died in the egg…[there has] just been this whole succession of disasters, but the kids are aware of them (T:30/10).

Karen indicated that her role as a teacher was not to shield students from these types of life experiences, but to ensure that experiences were handled in an age appropriate manner. She explained that:

> we have [real world] activities but they're adapted according to the age [of students], for instance…the artificial insemination [as part of an artificial breeding program], you probably wouldn't talk about that

> a real lot with the real little ones because they just simply wouldn't comprehend, but the older ones…it's really powerful stuff (T:30/10).

Karen's willingness to expose students to the real world enabled her to share and discuss these events openly with students, and encouraged students to critically reflect on their experiences in a manner consistent with the goals of a socially-critical pedagogy. This was demonstrated by students' questions and discussions with a visiting bee keeper. One grade 3 student, for example, enquired if bees were able to control their rate of breeding in order to respond to the amount of food available in any season. This student explained that her question was prompted by what students had learned, about the way in which kangaroos controlled their breeding, by assisting in a kangaroo monitoring program at EVNP. This prompted a class discussion that focused on the complex ways in which human activities (both good and bad), climate change and natural seasonal and species' life cycles interrelate, and how in turn, these relationships might influence not only the bee keeper's business, but also the lives of student families.

Despite the natural hurdles and setbacks experienced by students involved in various programs at EVNP, Karen noted that students felt connected to the park, highly motivated to return, extremely proud of their contribution, and most importantly, highly comfortable with their ability to influence the world in ways they considered to be positive.

The socially-critical pedagogy encouraged by SSP incorporated opportunities for students to learn through their participation in authentic life experiences, and therefore also presented students with opportunities to learn how to deal with the reality of setbacks. While some of the teachers viewed such setbacks as learning opportunities, others considered even the most innocuous mistakes to be an unacceptable component of student learning. This was well demonstrated by the different approaches to learning activities taken by Lisa and Cathy. As described in Section 5.3, Lisa carefully controlled every aspect of her science classes. Lisa ensured that each student copied the data and information she supplied correctly into their work books by asking them to copy her words directly from the whiteboard. The only problem-solving aspect of the lesson I observed (determining the percentage of water lost from fruit that had been left outside in the sun) was directed by Lisa so that all students followed very precise, step-by-step instructions. There was no opportunity for students to estimate or guess, or make a mistake of any kind. There was no opportunity for students to question, or to 'discover' anything for themselves. In other words, students in Lisa's class were not given the opportunity to experience failure.

In contrast, Cathy described a project for which students worked in small groups to design and build a racing car to be powered by a hydrogen fuel cell:

> the whole unit was the mistakes that the kids made…occasionally they were disappointed about it, but the learning that went on from the mistakes that they made, and saying okay this didn't work, what can

> we try…I reckon the beauty of that [was] it was just open, other than giving them the ultimate [answer, we gave them] what we wanted them to try and achieve…and to see the way that they attacked that and the testing and investigating that they did (T:22/11).

Cathy explained:

> I mean there are times, okay when you want them to learn particular skills then you teach them that skill, but if it's just something that you want them to learn about a particular topic, I think they have to make those mistakes, and sometimes, well no, I don't think we had one child that didn't have failures during that [project], no one was really cut about it (T:22/11).

Cathy's approach showed that she valued the learning that came from the experience of failure. Her comments indicated that setbacks encouraged students to question their ideas and to think creatively in order to find solutions to the problems they encountered. I attended the car races at the end of the project, and found that the students considered the results of the races to be secondary to the experience of undertaking the project. Students were most keen to explain the design of their cars in terms of: the testing they had undertaken; the research they had conducted into the properties of different materials; and what they had discovered about the performance of different design features, particularly with respect to size, weight and friction. It was evident that students had developed a wide range of understandings through their participation and negotiation in a collaborative and cooperative work environment.

8.5.2 Student ability

When investigating the educational benefits of programs in which teachers collaborated with science experts, Trautmann and MacKinster (2005,19-23 January) found that "teachers' perceptions of their students' expectations and abilities" were a significant hurdle to educational change (p.1). Similarly, I found that some of the teachers believed that primary school students were too young to benefit from the learning experiences provided by a socially-critical pedagogy, a feeling epitomized by David's statement that the practice of socially-critical pedagogy concerned him because "the kids just I don't think are capable" (T:24/11).

Elizabeth, for example, held strong beliefs about the ability and capabilities of her primary school students. When commenting on a socially-critical pedagogy described in a hypothetical scenario in which students visited a local forest to learn about plants in order to inform their decisions when planning a native garden for their school environment, Elizabeth described the learning experiences as more suitable for "secondary school, or later" (T:14/11). She suggested that such an approach "would fit in very well with the sorts of subjects they [secondary students] do, the way that some of those subjects are run, it would be something that would be very easily managed in the secondary surroundings" and that "you wouldn't have [students

from] primary schools going out into the community" (T:14/11). These comments reflected Elizabeth's belief that her students were too young to benefit from the types of learning experiences potentially provided by a socially-critical pedagogy. In support of this, Elizabeth indicated that she did not believe that her young students were capable of completing even a well practiced routine, such as the rubbish management system that they undertook each week: "because the kids can't do it unsupervised [it] takes up 20 minutes minimum" (T:14/11). When I questioned Elizabeth about why different classes in the school did not share the responsibility for waste management, she replied:

> for example if you had one person looking after junior bins and one person looking after middle school bins and likewise for the senior school you'd still have to have someone overseeing it, and if you happen to have two of those supervising teachers away on one day, then you'd have to go through the explanations with CRT's, and that would be horrific (T:14/11).

According to Elizabeth, her students could neither carry out the rubbish management routine by themselves, nor were they able to explain the requirements to a visiting teacher. This seemed to contradict Elizabeth's own views of how to determine if learning had occurred:

> it's not until you can tell or teach or impart that knowledge that you actually know it yourself, and that you know you know it, so when I see them [students] imparting it to someone else…whether or not it's someone else in our grade or another grade, or sharing that information…that's when I would know the extent of the learning and the extent of the success of that aspect (T:14/11).

Elizabeth's comments provided a valuable example of the presence and effect of Giddens' (1984) notion of the duality of structure and agency in the classroom. Each time Elizabeth directed the students' implementation of the rubbish management system, she re-confirmed that the rubbish management system was a routine of moving rubbish bins, but that part of this routine was that students are incapable of undertaking such a routine on their own initiative. As Elizabeth never provided students with the opportunity to demonstrate that they did have the ability to manage this program, she never observed the evidence she required to indicate that they did have this ability. In turn, Elizabeth's belief that her students did not have the ability to undertake the rubbish management system was never challenged. Thus, as discussed in Section 6.9, Elizabeth's practice was highly routinised, and as demonstrated here, her routinised practices incorporated her beliefs about her students' abilities.

However, contrary to Elizabeth's belief that primary school students were unable to take responsibility for almost any aspect of their education, students of a similar age in Karen and Cathy's' classes appropriately and very effectively directed many aspects of their learning (as

presented in sections 5.4.3 and 5.6.3 respectively). However, both Karen and Cathy carefully and deliberately considered the age of their students when facilitating opportunities for student learning. Karen, for example, indicated that the appropriateness and effectiveness of any learning activity "really does depend on the age of the children as to how sophisticated their skills are or whether a child could actually do that or not" (T:30/10). Both Karen and Cathy encouraged students to make decisions not only about their how they demonstrated and extended their understandings after participating in a learning activity, but also about what learning activities to undertake. In other words, they expected students to make decisions regarding their learning, and they respected the decisions made by students. Karen and Cathy considered that part of their role as a teacher was to assist students to learn how to make choices; a central component of any effective socially-critical pedagogy in which teachers "are not seeking right answers, but engaging our students in a process that can help them to make better decisions" (Jickling, 2005, p.43).

8.5.3 Student choice

Elizabeth described the role of student choice in normal classroom activities as important, or "good, as long as they [students] know what choices they've got" (T:14/11). This suggested that Elizabeth viewed student choice to be teacher-directed activity. Similarly, Lisa could provide only one example of a situation in which her students had been given an opportunity to make a decision, related to "our science and maths night coming up, where the kids have decided what experiments and what activities [of those already completed in lessons] they want to show their parents when they come in" (T:17/10). In other words, Lisa and Elizabeth tightly controlled student choice and limited students' decisions by defining specific alternatives.

In contrast, both Cathy and Karen indicated that student choice was an integral component of their pedagogical approach to SSP. Cathy stated that "it's really important to give the kids a choice of ways of presenting their information [to] allow for the different learning styles" and commented that students "come up with such brilliant things to do" (T:22/11). Karen suggested that this was also important because "how they [students] come back from that [any learning experience] is really a personal thing" and that it was "up to them as to where they take, where they go with the information that they've been given" and the ideas they developed (T:30/10). Karen explained that "I find every week, of every group [of students] that come here, we go in a different [direction]—even though we have these basic…components that we will look at for the week, we all end up going in a different way" (T:30/10). She stated that at EVNP, "I think there's a free degree of freedom here [at EVNP] in choice" (T:30/10) and cited a project in which students of different ages assisted in a biological survey of a pond at EVNP, as

> an example [of] how the children direct their learning…some will come back and want to really go on with the microscope…others won't be interested, they'll want to come back and they'll take

> cameras and they'll want to do a movie about it…others will just want to work with photographs and maybe do a standard…slide show type of thing (T:30/10).

Cathy and Karen understood that different students would learn different things from the same activity, but that for each student, the learning would be valid. In other words, these teachers believed that valid learning at school incorporated more than just the learning able to be identified or directed by a teacher (see Section 8.5.4).

Cathy and Karen agreed that student choice was important, not just in terms of developing students' ability to make appropriate decisions, but most importantly, also to motivate students. Cathy explained that her approach to student choice reflected her understanding that "I can't see that you can get excited about something that you've done twenty times before, that's not what I would be after…[I need] to consult the kids…where they want to go" (T:22/11). She referred to a student initiative to establish a "leadership role" in their school by advertising the environmental benefits of bringing no-rubbish lunches, as a project in which student choice had led to learning activities that had motivated her students to excel. Cathy stated that because the students had "planned the whole thing", including the development of a comical advertising character (the nude food dude) and the use of slogans such as "eating nude food makes you a cool dude" (T:22/11), they had been highly motivated to succeed, and deeply engaged in the new and sometimes unusual learning activities they designed.

Similarly, Karen explained that there were opportunities for students to participate in many types of learning activities at EVNP, but that many of these activities would begin only after she had identified a group of students who were enthusiastic and willing to participate. For example, she explained that a worm farm had been donated to the school, but that:

> we haven't started because I need a grade that needs a bit of a ground swell, okay, so I'm showing the kids where it is, and we have a little bit of a talk about it, and they've got to be a group who are really keen and really interested…a couple of groups will have real ownership of that and others, whilst they might participate and learn it, they won't have that same ownership…I don't expect children to all have a high level of ownership for everything they do, that's just ridiculous (T:30/10).

Karen's comment indicated that she acknowledged that students are individuals with a range of interests, and that any student will learn best when they are interested in the learning activities in which they participate. In other words, Karen, and Cathy, believed that encouraging students to make choices about their learning enabled students to identify those aspects of an activity which interested them the most, which in turn, motivated them to more deeply engage with that learning activity; like Richmond (1990), they understood that "the link between motivation and

learning is strong" (1990, p.194). However, these teachers did not completely relinquish their decision making role, as indicated by Karen's comment that "we do need to have teacher direction and control", but instead, moderated their decision making in recognition that "it's just simply not as powerful as coming from the children" (T:30/10).

Lisa also recognised the role of student interest. Despite limiting student choice through a strongly neo-vocational pedagogy, Lisa indicated that student interest was an important consideration for teachers. She explained that the implementation of SSP had improved her pedagogy by encouraging her to incorporate more experiments in her science classes, stating that this was beneficial as:

> it's given that hands-on feel to it [science]…they [students] like it, they enjoy it, they want to be part of it, they wanna know what it's about, so that's why we do the hands-on experiments because it really draws them in (T:17/10).

Lisa also described her observation of the responses of her students to an activity run by an external educator who took students for a walk along the banks of a local river to investigate water pollution issues. She noted that:

> the kids loved that cause we were there, and they could see it, and they knew what we were talking about, and they were telling us things, cause that was their area and they know what happens and they play there (T:17/10).

Lisa's comments demonstrated that she was aware of the benefits of student interest in learning activities. However, Lisa's teacher-directed pedagogy suggested that she believed that it was a teacher's role to identify ways in which to make lessons interesting. In other words, Lisa believed that a teacher must consider student interest when choosing the content of a lesson, and the manner in which that content should be learned.

In contrast, Elizabeth seemed unable to identify any aspect of her role as a teacher which required her to consider student interest. Her position on this was best illustrated by comments related to her use of hands-on activities:

> hands on is definitely good…I mean I'm thinking about our students who, many of them are from a low socio-economic level…often you've got to, you know, they don't get past 'I like doing that'…but why? or what did you learn? Well, you know, it's limited feedback…hands on and working with a partner is a really good way of drawing out and pushing out and maximising their own understanding of some learning (T:14/11).

This comment illustrated Elizabeth's belief that her role as a teacher was to ensure that her students acquired certain knowledge. When commenting about a hypothetical scenario that depicted a neo-vocational pedagogy, Elizabeth noted that "the teachers have looked at the way that those students engage best" (T:14/11). In contrast, she noted that the socially-critical approach represented in another hypothetical scenario "is not quite as thorough in looking at how to engage most of the students for most of the time" (T:14/11). These comments clearly indicated that Elizabeth believed that students were not capable of making decisions regarding their learning, and that her role as the teacher was to identify the lesson content and learning procedures that would best assist her students to acquire specific knowledge. Although Elizabeth's comments indicated that, to some degree, she recognised that learning was probably most effective when students were engaged in the learning process; this interest was secondary to the need to design lessons which addressed the knowledge that she had determined the students must learn.

Thus, although most of the teachers indicated that student learning was most effective when students were motivated to learn, and that this motivation was derived from an interest in the learning activities, the manner in which the teachers acted on this understanding differed greatly. Both Cathy and Karen believed that student interest was paramount, and that their teaching role was to motivate students by facilitating a wide range of learning experiences from which students could choose to participate. These teachers viewed the socially-critical pedagogy encouraged by SSP as a vehicle through which they could assist students to develop the skills and understandings needed to make the most of any learning opportunity. Many of these learning opportunities incorporated activities that were undertaken within, and which contributed to, real world contexts. Cathy and Karen demonstrated that primary school students were capable of directing many aspects of their learning, both in terms of choosing learning activities, as well as choosing ways in which to demonstrate their learning.

In contrast, Lisa and Elizabeth aimed to develop student interest through a neo-vocational pedagogy. When planning learning units, these teachers aimed to identify topics that they perceived would interest the majority of their students. They aimed to promote student motivation and interest by incorporating opportunities for students to choose, from a set of appropriate pre-planned alternatives, some aspects of some of their lessons. In other words, while Cathy and Karen focused on facilitating learning activities driven by student interest, or student choice, Lisa and Elizabeth focused on attempting to make students interested in their teacher chosen, pre-planned, learning activities. Neither Lisa nor Elizabeth believed that primary school students were capable of directing any significant aspect of their learning, and therefore, tightly controlled the learning process in a manner that prevented students from demonstrating their ability.

Thus, the strategic cases demonstrated that the teachers' beliefs about the ability of their students, in part, reflected those teachers' observations of the actions of their students. In each case however, the actions of students reflected the practices of their teachers. This demonstrated the influence of the duality of structure and agency (Giddens, 1984) on the teachers' agency. Richmond (1990) noted that the "key here is the probability that motivated behaviour will occur regardless of the presence of others, whereas the compliant behaviour will only occur in the presence (physical and/or psychological) of the compliance-seeking person" (p.182). Richmond (1990) suggested that these two effects reflect two distinct classroom management styles: one which aims to motivate students, as undertaken by Cathy and Karen; and one which concentrates on achieving student compliance, as undertaken by Lisa and Elizabeth. In other words, Cathy and Karen taught in a manner that enabled their students to capably direct aspects of their learning, which in turn, demonstrated that their socially-critical pedagogy was effective. Lisa and Elizabeth taught in a manner that prevented students from undertaking any decision making regarding their learning, which in turn, prevented students from demonstrating that they could effectively learn from experiences potentially provided by a socially-critical pedagogy.

Analysis of the strategic cases indicated that the educational ideologies held by the teachers who aimed to motivate students were somewhat different to the ideologies held by those who aimed to achieve student compliance. One of these differences concerned whether or not a teacher was the sole source of knowledge in the classroom. In other words, some of the teachers believed that the process of learning was not restricted to teacher–student interactions.

8.5.4 Learning from others

Both Cathy and Karen believed that an important part of assisting students to develop the skills and understandings required to take advantage of potential learning opportunities, and therefore to motivate them as learners and help them to identify their interests, was to encourage the development of meaningful relationships. Meaningful relationships included those between peers, as well as those between students and members of their community. Cathy, for example, stated that "we've had a lot of interaction" with the local community. She listed a wide range of collaborative projects in which her students had participated, including the production of public artwork, illustrated poems and ceramics as part of an upgrade to a local park and playground, the development of a local history path, and a variety of community planting projects and pollution monitoring programs. Cathy noted that "I think it's great that they're [her students] working with other people in their community…I think it gives the kids a really good sense of community and how they can be part of it, and how different members of the community can contribute" (T:22/11).

Similarly, Karen felt that her students were highly engaged with their experiences at EVNP not just because of their ability to make decisions about their learning, but also because of the

quality of the relationships they developed with the staff, resident animals, park visitors and natural environments. She stating that "I try to make it so that these are their [the students'] endangered birds and these are their eggs…these are their ducks…these are their lizards, so they have ongoing relationships" (T:30/10). Karen explained that, in response to student requests, she had established a postal service which enabled students to maintain communication with EVNP staff between visits:

> I'm the postie, the mail lady, and so there's the EVNP letter box…in any one day I bring the mail and I drop it off to the rangers who then send the letters back, and there's a heavy flow of writing letters…from the children to the rangers and back and forth and back and forth…for instance a grade writes a letter [saying] 'we saw a bird it looks like this' and they draw it, and so the guys write back to them and say 'it's probably such and such…if you want to come up I can show you some other examples of that species' (T:30/10).

Karen noted that the effects of the development of such relationships extended beyond school hours, indicated by the fact that "so many kids come up here at the weekend and out of school time" (T:30/10). She explained that her students were often seen on weekends at the park either explaining the importance of the endangered breeding program to public visitors, or chastising visitors for dropping their rubbish in the park. Karen stated that the relationships developed by students at EVNP were valuable as they represented "the real world" and that this meant that students were learning in an environment that required them to develop their understanding of "team work" (T:30/10). She believed that this ensured that students "can learn and can make a difference" and most importantly, that "children get the message not just from a teacher but from other people" and this makes this learning "really powerful" as it has real "meaning" (T:30/10).

These comments suggested that meaningful learning is knowledge and understanding that students identify as being relevant to their lives, and relevant to the activities in which they are motivated to participate. This reflects the understandings upon which socially-critical pedagogy was founded, as presented in Section 2.4.5, that learning is only truly effective when developed within contexts related to a students' life experiences (Giroux, 1988), that is, within their "community" (Mogensen, 1997, p.434). Similarly, by undertaking a socially-critical approach both Cathy and Karen acknowledged Freire's (1972) understanding that learning opportunities which incorporate contextually specific experiences in this manner positions each student as an "active actor" (Swain, 2005, p.1). Freire (1972) believed that this was central to effective socially-critical pedagogy, as it provided opportunities for students to not only increase their awareness of the world, but to purposively critically reflect on their developing understandings through authentic participation (Schugurensky, 2002, p.63).

Thus, the neo-vocational pedagogy employed by Lisa and Elizabeth reflected their belief that their students were not capable of directing any significant aspect of their learning. As a result, these teachers assumed a role in which they judiciously identified, planned and prepared all learning activities in which students would participate, and from which they would learn the knowledge identified by their teachers as appropriate. In contrast, the socially-critical pedagogy employed by both Cathy and Karen demonstrated their belief that their students were capable of making appropriate decisions regarding their learning, and were able to effectively participate in, contribute to, and learn from, authentic community-based activities. The beliefs held by the teachers regarding the ability of their students clearly influenced the manner in which the teachers undertook their role to: care for the emotional wellbeing of their students; identify appropriate learning; and facilitate student motivation and interest. These beliefs influenced each teacher's decision regarding whether or not to implement SSP through the recommended socially-critical pedagogy, and therefore, contributed to the development of the rhetoric–reality gaps identified. However, I found that other beliefs also contributed to the development of these rhetoric–reality gaps. These beliefs centred on the problem of defining, recognising and assessing valid learning.

8.5.5 Assessment of student learning

Cathy believed that part of her role as a teacher was to motivate students: "I have to be motivated to get the kids motivated" (T:22/11). She suggested that sometimes this meant learning alongside her students. She used the example of a recent project: "I knew nothing about that [project] before we started, know lots about it now" (T:22/11). This reflected the idea that when students are able to make decisions they may choose to undertake a project about which a teacher knows nothing; and this makes assessment of student learning somewhat difficult.

Similarly, Karen noted that, although the learning experiences at EVNP had real meaning for students and that undertaking any of the activities meant that students were "using the whole curriculum" (T:30/10), it was difficult to assess that learning in terms of a traditional tick-the-box curriculum. Scott and Oulton (1999) also reached this conclusion, and suggested that the environmental education advocated by socially-critical approaches, like that embraced by SSP, are not often successfully implemented as "school success continues to be measured in terms of traditional academic, rather than more-environmental, criteria" (p.90). Karen reported that at EVNP "we sit down and say right, where do we want these kids to be and we actually create the curriculum" (T:30/10). This so-called 'curriculum' incorporated the types of experiences and activities available to students at the park rather than simply listing specific outcomes in terms of knowledge gained. She noted that this did not in any way preclude the teaching of specific ideas and/or skills, noting that particularly in her role as an ICT teacher, "at the end of the day you do still have to teach some skills, because you're not going to get these final whiz bang products unless the kids have been taught the skills in the first place" (T:30/10). Karen

indicated that activities undertaken by students at EVNP constituted such rich learning experiences that she could easily justify these in terms of any standard curriculum if necessary: "I can say that without even reading it [state curriculum documents]" but that, "at the end of the day yes, we do need to assess [in relation to the government curriculum], painful as it is" (T:30/10). However, the idea that a teacher should endorse a learning activity without first deciding what should be learned from that activity, and how that learning reflected a specific component of an appropriate curriculum, was not acceptable to most of the teachers.

David indicated that a neo-vocational pedagogy was preferable to a socially-critical pedagogy, as it enabled a teacher to fulfill their role to "lead kids" (T:24/11). He indicated this meant that, as a teacher, "you're giving them [students]…everything they need…you're putting it in a bit of a framework" (T:24/11). David suggested that when "the range of things that could be done was fairly certain…the outcome was fairly certain" and ensured that students were "getting definite outcomes in the curriculum" (T:24/11). David's comments suggested that he linked student decision making with his need as a teacher to demonstrate that his students had accomplished appropriate curriculum outcomes. These sentiments were shared by both Elizabeth and Lisa.

During our interview, Elizabeth seemed to have difficulty stating what she perceived to be the goals of SSP. During our discussions, she consistently correlated SSP goals with the transfer and acquisition of knowledge in the state curriculum. Elizabeth held very clear views on the 'correct' way in which to teach. She described a neo-vocational pedagogy as "a very logical and progressive approach", and that one of the best ways in which to monitor learning was to observe students "imparting it [knowledge] to someone else" as the ability to "repeat and teach someone else" (T:14/11), a comment which highlighted Elizabeth's belief that recitation of factual knowledge was an appropriate assessment of student learning, as "that's when I would know the extent of the learning and the extent of the success of that aspect [of a teaching/learning unit]" (T:14/11).

Like Elizabeth, Lisa indicated that her role as the teacher was to determine what students must learn, stating that "I want to give them [students] the education" (T:17/10). Her lessons demonstrated that she aimed for each student to acquire what she had determined to be appropriate knowledge, and that this knowledge was related to a specific curriculum. Lisa's comment that "at the moment most of what we do is just the curriculum side of things" (T:17/10) reflected her attempts to implement SSP, as a new curriculum, by incorporating new and/or different knowledge into her lessons.

Elizabeth and Lisa shared the belief that a teacher's role was to ensure that students gained the knowledge outlined in a chosen curriculum, the success of which could be judged by testing students' knowledge. These beliefs corresponded to the principles and educational aims of the neo-vocational pedagogy (Kemmis et al., 1983) through which these teachers chose to

implement SSP. Research by Trautmann and and MacKinster (2005,19-23 January), for example, shows that teachers with these beliefs can find it difficult to embrace non neo-vocational pedagogies. They found that attempts to introduce inquiry-style science lessons are often not successful, because "many teachers view factual knowledge as the most important student outcome" of school learning (p.2). However, it is important to note that the teachers who implemented SSP through a socially-critical pedagogy did not assume that factual knowledge was unimportant, nor did they refrain from assessing student learning.

Both Cathy and Karen agreed that assessing student learning from a socially-critical pedagogy presented some unique challenges, particularly as SSP goals were best understood as student actions or behavioural change. Measuring these types of outcomes can be difficult, as stated by Karen:

> this program [SSP] is not meant to be an end in itself, it's meant to be a springboard [for] changing attitudes for children to take back to East Valley Primary School…now I don't know what I can truly measure here (T:30/10).

Karen referred to the actions of her students as evidence of their learning at EVNP. In addition to student actions described as evidence of motivation and interest in Section 8.5.3, Karen also described one student initiative in which money was raised to re-design a bird breeding pond:

> [the] junior school council got together, and this totally came from the children…normally you make money in junior school council and you give it to this group or that group, they wanted it to go to the Musk Duck so they could breed, [it's] really really important that these ducks get together to breed (T:30/10).

Karen noted that "a lot of people wouldn't be happy because it is loose", that is, because these outcomes are not easily related to traditional tick-the-box knowledge-based learning outcomes (T:30/10). Similarly, Cathy noted that she assessed the success of the program through changes she observed in student behaviour, citing for example:

> it's amazing now you'll go out of the classroom for a specialist session, and in the middle of winter they'll turn off the lights on you, you can be still working there, but they've walked out of the classroom and turned off the lights (T:22/11).

Cathy stated that she had heard from parents and students that "they've [students] introduced lots of the things that we've introduced at school at home, so it's making an impact on the various [Sirius College] home lives as well" (T:22/11). Cathy indicated that this was evidence of learning.

Thus, both Cathy and Karen recognised that their students were transforming their developing understandings into action, and that such voluntary actions were evidence that their teaching strategy and implementation of SSP had been successful. In contrast, Lisa and Elizabeth neither acknowledged these types of outcomes as representative of valid learning, nor did they believe that their students had the ability to voluntarily act in these ways (see Section 8.5.4). In light of this, these two teachers' beliefs about what constitutes valid learning, and how this learning is assessed, contributed to the rhetoric–reality gaps represented by their practices.

8.6 TEACHER POWER AND CLASSROOM AUTHORITY

Giddens (1979) considered power to be a "capability" (p.68) or "transformative capacity" (p.88) in that it reflects a person's ability to achieve specific outcomes from their actions. As described in Section 3.8, according to this definition, power is derived from the complex and dynamic interrelationship between contextually-specific rules and resources, and an individual's ability to exploit and mobilise these in order to create an asymmetric distribution of resources. In line with Giddens' (1984) notion of the duality of structure and agency, rules and resources also combine to mediate human interaction by defining social expectations for behaviour, shared meanings for communication, and appropriate sanctions for non-conformity. These in turn identify the relative power, or domination, of certain individuals in social interactions (Turner, 2003a). Although the role of power was not a specific focus of this research, some aspects of the teachers' attempts to implement SSP did reflect the effects of the power held by the principals and teachers.

Giddens' (1984) suggested that power structures are not absolute, and therefore, the principals and teachers were active human agents with the ability to influence and transform traditional patterns of social interactions within their school (Devine, 2000). My research findings confirmed this suggestion.

As outlined in Section 6.3, the principals were responsible for the decision to implement SSP within their schools. Many of the teachers indicated that their decision to participate in the implementation of SSP was made only because they recognised the power held by their principal in this matter. However, other research has found that the power of principals is not absolute. Evans' (1987), for example, employed a structuration research framework to investigate the attempts of a new school principal to alter well-established teaching practices in a school. Although the assumption that, irrespective of the educational policies of the principal, teachers were able to maintain relative autonomy in choosing their classroom pedagogical practices was partly supported by the research findings, some unexpected features of the ways in which power relationships worked within the school were revealed. In particular, teachers who provided resources, in the form of knowledge and support to the new principal, were most able to influence that principal's decisions. The change in principal was eventually accompanied also by a change in the cohort of teachers at the school, as new teachers were

employed according to their willingness and ability to implement new policies, that is, policies developed under the influence of the supportive teachers. In addition, newly appointed teachers enjoyed the principal's support, and therefore also influenced the principal's decisions (Evans, 1987). Several aspects of the manner in which the principals and teachers responded to the implementation of SSP supported Evans' (1987) findings.

Philip's (Section 5.11.1) experience as the principal aiming to implement SSP at West Quay Primary correlated well with Evans' findings. For example, Philip stated that it had been very difficult to convince teachers to alter their well-established pedagogies, and that as a result, "when we're employing, we'll be looking specifically for specific skills, people who are…into curriculum development and those sorts of things" (T:30/11). In addition, he noted that although he could not always influence the classroom practices of his teachers, he aimed to "try and match up the skills you have [in terms of teacher ability]…to make things flow better", and referred to the fact that one teacher "who initially came back [from an SSP professional development session] and threw cold water on the idea of sustainability ceased to be the middle years contact person [be]cause I thought, well, this is something I really want to push, and I can't have someone who's ultra negative about it being the main contact [teacher]" (T:30/11). In other words, Philip acknowledged that his power was not absolute. Although he could influence many things in the school, the manner in which the teachers chose to implement his requests represented their autonomy in their classrooms.

In all cases, I found that the teachers chose the manner in which they would implement SSP. Teachers such as Cathy and Karen for example, successfully fulfilled their principals' requests to implement SSP through a socially-critical pedagogy, because the environmental and educational ideologies embedded within the program correlated with their personal ideals. Both of these teachers reported that they received generous support from their principal. Other teachers, including Lisa, Julia and Anita, also received support from their principals, but, due to the lack of congruence between SSP and their personal environmental and educational ideologies, chose to fit the new program into their existing practices. As presented in Section 6.6.1, Julia and Anita reported that the support provided by a principal can have significant ramifications. They noted that their principal offered training and mentoring to any teacher who indicated that they were willing to attempt to alter their pedagogy in order to effectively implement SSP. In other words, the principal acted to enable teachers to embrace change. However, the acceptance of this support by those teachers was viewed as a betrayal by colleagues who resisted change. This meant that the teachers who resisted change were denied assistance that enabled change, which in turn, established a structural impediment to change.

Thus, like Evans (1987), I found that irrespective of a principal's directions, the teachers most resistant to making the changes required to implement SSP through a socially-critical pedagogy, such as Elizabeth, successfully used the power available to them to maintain their well-

established classroom practices. Other teachers, such as Lisa, used the power available to them to implement only the aspects of SSP that they considered to be consistent with their personal ideologies. Teachers who supported the ideologies embraced by SSP, such as Cathy and Karen, used their power to holistically implement SSP. This supported the notion that the teachers' classroom practices reflected those teachers' choices, or agency. In other words, the gaps between the reality of teachers' classroom practices and the rhetoric of SSP were a matter of teacher agency.

The manner in which teachers establish and utilise their power in the classroom has been extensively studied (e.g. Kearney, Plax, Richmond & McCroskey, 1984; Kearney, Plax, Richmond & McCroskey, 1985; McCroskey, Richmond, Plax & Kearney, 1985; Richmond & McCroskey, 1984, 1992). In general, researchers agree that the power wielded by a teacher is not developed unilaterally by that teacher, but is "most essentially a form of professional authority granted by students who affirm the teacher's expertise, self-confidence, and belief in the importance of his or her work" (VanderStaay, Faxon, Meischen, Kolesnikov & Ruppel, 2009, p.262). Thus, compared with the socially-critical pedagogy undertaken by Cathy and Karen, the neo-vocational pedagogy employed by Lisa and Elizabeth did not reflect simply a difference in the matter of who held the greatest power in the classroom, but rather a difference in the manner in which power was utilised, or rather, how teacher authority was established in the classroom (Phillips Manke, 1997). Both Cathy and Karen established an authority which enabled them to provide learning opportunities that they believed would both motivate and interest students to develop their understanding of the world, and learn to act on those understandings. On the other hand, Lisa and Elizabeth established their authority to provide learning opportunities that would best motivate and interest their students, to gain the essential knowledge-based understandings and skills outlined in the government authorised curriculum.

However, irrespective of the manner in which the teachers' chose to utilise their power in their classroom, I found that their classroom practices closely reflected their personal educational ideology. Carrington (2010) suggested that any teacher whose "conceptions and beliefs are consistent with their practice" have had "opportunities to critically reflect on their actions and consider new possibilities for teaching" (p.2). Although the effect or practice of teacher reflexivity was not specifically investigated during this research, comments made by both Karen and Cathy indicated that their teaching role incorporated reflection. Karen, for example, commented that my questions and hypothetical scenarios caused her to question and think about her practice: "I think there's a fair degree of freedom here in [student] choice…but now you've got me worried…you've got me thinking" (T:30/10). While this highlighted, in part, the effect of the unintended and double hermeneutic consequences of a researcher interacting with a practitioner (see Section 4.5.1), it also suggested that when faced with new ideas, Karen would question and re-assess her practices. Cathy also indicated that reflection was an important aspect of her role as a teacher. She described her work environment as one which encouraged

an "open minded approach and that willingness to [say] okay, so we've done it this way, why not try it another way? If it's successful, great" (T:22/11). She indicated that her pedagogy was the result of consistently "try[ing] new things" (T:22/11), and assessing these to find the best approach. Kwo and Intrator (2004) indicated that the manner in which Cathy and Karen utilised their power in the classroom reflected what they termed, "inner power", that is, the "power to learn". They suggested that a teacher with such power could be recognised by a classroom practice "featured by her inquiry orientation, by which she was open to risk-taking, collaboration with her pupils and mobilising learning resources" (p.287).

In contrast, neither Lisa nor Elizabeth indicated that reflection was an on-going aspect of their teaching practice. Both teachers reported having observed that students preferred certain forms of learning experiences, for example, Lisa noted that "we do the hands-on experiments because it really draws them [students] in…they like it, they enjoy it, they want to be part of it, they wanna know what it's about" (T:17/10), and Elizabeth indicated that the use of "hands-on [activities] and working with a partner is a really good way of drawing our and pushing out and maximising their [students] own understanding of some learning" (T:14/11). However, these observations were reported in the form of justification for current pedagogical routines rather than as an indication of a significant degree of on-going reflection.

However, "teachers' professional frames are both individually and socially derived – shaped by experiences as well as by expectations and values" (Thomas & Pederson, 2003, p.322). Like all aspects of human agency, each teachers' pedagogy reflected a unique personal knowledge and understanding of the world around them: their tacit knowledge (Giddens, 1984).

8.7 TACIT KNOWLEDGE AND CONGRUENCE

As indicated by Giddens' notion of tacit knowledge (see Section 3.4), the teachers were knowledgeable individuals with well developed understandings of the social and cultural expectations of both teachers and students in educational institutions (Giddens, 1976; Stake, 2001). Coburn (2004) recognised teachers' tacit knowledge as:

> deep-seated assumptions about the nature of teaching and learning that are linked to the broader movements in the [school] environment [and which] guide decision making often in preconscious ways [by] framing the range of appropriate action and guiding what 'makes sense' to teachers" (pp.234-235).

An individual's tacit knowledge is "developed [and up-dated] over time" (Coburn, 2004, p.235). This suggests that the teachers' tacit knowledge of the process of education, and the manner in which teachers and students interact, began to form during their own schooling: "teachers have themselves spent many years as students in schools, during which time they have developed their own beliefs about teaching, many of which are diametrically opposed to those presented to

them during their teacher education" (Korthagen, 2001a, p.81). Such tacit knowledge "constitute[s] a strong framework into which teachers tend to try to 'fit' new approaches and ideas" (Coburn, 2004, p.235). As a result, Lortie (2002) contended that "teachers will often reproduce the strategies they have had as primary, secondary and teacher education students" (Miles & Cutter-Mackenzie, 2006, p.141). In light of this, Coburn (2004) described teachers as acting with "bounded autonomy" (p.234), that is, that a teacher's "knowledge and beliefs provide a framework for pedagogy, knowledge of students, subject matter and the curriculum, and guides the teachers' actions in practice" (Carrington, 2010, p.2). The notion that tacit knowledge does influence the manner in which the teachers viewed new educational ideas and practices was supported by comments made by both Karen and Cathy. Karen, for example, referred to the recent introduction of a new state curriculum, stating that "when VELS came in…I thought well thank goodness somebody's written some sense…because this program [at EVNP] had then been in operation…and VELS fitted me…or I fitted VELS" (T:30/10). Similarly, Cathy noted that the goals of SSP were congruous with her educational goals to "use our environment and care for the environment, and having something special for the year 4s" and that therefore the implementation of SSP "naturally slipped into being" as part of a student "leadership" program (T:22/11).

I found that the teachers' tacit knowledge greatly influenced their decisions about whether or not to implement SSP through a socially-critical pedagogy or a neo-vocational pedagogy. The strategic cases demonstrated that each teacher's decision reflected their judgment of the similarity, or "congruence" (Coburn, 2004, p.227) of their tacit knowledge and the environmental and educational ideologies embedded within the ideals and practices of SSP. This was supported by a study of the responses of Californian teachers to new ideas about reading instruction, in which Coburn (2004) found that "the greater the congruence of institutional pressures with the teachers' pre-existing beliefs and practices, the more likely the teachers were to incorporate new approaches and influences into their classroom practice in some manner" (p.227). Both Karen and Cathy demonstrated that their decisions to implement SSP through a socially-critical pedagogy reflected a high degree of similarity between their personal ideologies, and those represented by the goals and pedagogical requirements of SSP. Both of these teachers held strong views regarding the need for, and validity of, environmental education as a legitimate part of primary school learning. Both Cathy and Karen justified their role as a teacher in terms that were consistent with the learning objectives of a socially-critical pedagogy. In addition, both of these teachers indicated that prior to implementing SSP they had already well-established teaching strategies which incorporated elements of a socially-critical pedagogy. In other words, Cathy and Karen were able to effectively implement SSP through a socially-critical pedagogy by simply incorporating the program into their existing teaching practices.

However, teachers' classroom practices often fail to reflect the rhetoric of new educational ideas which do not correspond with their existing views about the subject and/or their well-established teaching strategies (Olson, 1992; Sosniak, Ethington & Varelas, 1994). For example, Lisa demonstrated significant enthusiasm for the environmental ideals of SSP. She identified the anthropocentric values represented by the goals of SSP, and indicated that these matched many aspects of her own environmental beliefs. However, the socially-critical pedagogy recommended by SSP was not entirely consistent with her educational ideology. Although Lisa recognised that students could benefit from many aspects of a socially-critical pedagogy, she did not believe that undertaking a socially-critical pedagogy would enable her to fulfill her role as a teacher, particularly in terms of ensuring that her students gained the knowledge outlined in the state curriculum followed by her school. The idea that teachers may not choose to employ a teaching strategy that is only partially consistent with their personal ideologies is supported by others. For example, a study of the practices of an outdoor environmental educator found that it was the "notion of what it meant to be a proper teacher, rather than barriers related to programme, skills, resources, or his own beliefs in the value of student-centred pedagogy, that were the main deterrents making it difficult…to teach the way he wanted" (Barrett, 2007, p.213). The manner in which Lisa attempted to implement SSP, as science lessons and a neo-vocational pedagogy, represented her perception of the relationships between her beliefs and the environmental and educational ideologies represented by SSP. Lisa's response matches those found by Coburn (2004) as typical of many teachers who attempt to implement educational changes that have some degree of congruence with their personal ideologies, by incorporating "the messages by assimilating them into their pre-existing practice, rather than making more substantive adjustments" (p.227). In other words, Lisa used SSP to introduce environmental education to her students, but chose to do this in a manner that fitted into her existing well-established practices. Thus, the gap between the reality of Lisa's practices and the rhetoric of SSP reflected her decision to attempt to implement SSP within science lessons and her existing neo-vocational pedagogy. Although Lisa agreed with the environmental goals of SSP, she found that the pedagogical requirements of the program conflicted with her educational ideology, and therefore, also her beliefs about her role as a teacher.

Like Lisa, Elizabeth agreed that the environmental goals of SSP reflected valid social concerns and addressed the future needs of humanity. However, unlike Lisa, she found it difficult to justify these goals as a legitimate part of primary school education. Other studies have shown that teachers' tacit knowledge may include beliefs about what is legitimate learning. For example, although pre-service teachers in Queensland were found to be competent and prodigious users of digital technologies, and quick to make use of technological changes, "they did not align the changing nature of technology with changes in education" (Donnison, 2004, p.22). Donnison (2004) reported that although these pre-service teachers' "lived experience was

one that evidenced technological literacy and competence, their future predictions of themselves as teaching professionals suggested limited technological engagement" and that "technology was predicted to be at the periphery of education", and therefore its inclusion "in the classroom mimics the present situation" (p.26). In other words, this aspect of a teachers' tacit knowledge may contribute to gaps between their classroom practices and the rhetoric of the educational programs they have been directed to implement.

In addition, and like Lisa, Elizabeth found that the socially-critical pedagogy of SSP was incongruous with her personal educational ideology. Elizabeth believed that this pedagogy could not enable her to fulfill her role as a teacher, particularly in terms of the emotional care of her students, and like Lisa, in terms of ensuring that her students gained the curriculum-specified knowledge deemed appropriate by her school. The manner in which Elizabeth attempted to implement SSP reflected the relationship between the goals of SSP and her environmental and educational ideologies: a routinised waste management system that incorporated minimal environmental learning, and which was meticulously designed and instigated to minimise its impact on Elizabeth's traditional daily lessons. In other words, Elizabeth chose to deliberately separate activities related to the implementation of SSP from what she considered to be her legitimate lessons. Thus, the gap between Elizabeth's practices and those advocated by SSP reflected her decision to not implement SSP, as its educational goals and pedagogical requirements conflicted with her environmental and educational ideologies, and therefore, also her beliefs in her role as a teacher. Other studies indicated that Elizabeth's actions were not an uncommon response to educational change. A study of teachers' responses to changes in Tasmanian educational institutions, for example, revealed "a clash between the administrative ideology of economic rationalism and the professional ideology of care" (Easthope & Easthope, 2007, p.2). This "class of ideologies" caused a great deal of teacher anxiety as "teachers were forced to adapt to changes imposed upon them. The attempt to satisfy the requirements of both ideologies created in some teachers' minds a realisation that it was impossible to maintain the level of teaching they previously enjoyed" (p.12). The study found that although it seemed as though the required changes were being implemented they were actually merely "adopted in addition to the professional ideology that was already in place" (Easthope & Easthope, 2007, p.10), such that, the reality of the teachers' practices did not match the rhetoric of the program they professed to be implementing.

Thus, the teachers' classroom practices reflected, in part, their tacit knowledge which contributed to their "inclination towards reproducing the status quo" (Donnison, 2004, p.28). However, this effect was not restricted to those teachers whose practices represented rhetoric–reality gaps, but to all of the teachers, irrespective of the manner in which they chose to implement SSP. The tacit knowledge held by Cathy and Karen embraced beliefs and values that were not only consistent with those embedded in the goals of SSP and the recommended socially-critical pedagogy, but which reflected their existing pedagogical preferences and

practices. In contrast, the tacit knowledge of teachers such as Lisa and Elizabeth embraced beliefs and values that could not be supported by the implementation of SSP through a socially-critical pedagogy, but which reflected these teachers' preference for their well-established neo-vocational pedagogy.

8.7.1 The duality of structure and agency: a note about praxis

As outlined in Section 3.4, each person's tacit knowledge incorporates contextually-specific understandings of social expectation and personal obligation (Giddens, 1984; Stones, 2005). The strategic cases showed that, in line with Giddens' notion of the duality of structure and agency, each teacher's classroom practices not only reflected their tacit knowledge, but also confirmed that tacit knowledge (Giddens, 1984). For example, Elizabeth believed that her students were incapable of making appropriate decisions about their learning; a belief that was continuously supported by her students being prevented from either making decisions, or learning how to make decisions, by Elizabeth's teacher-directed neo-vocational pedagogy. In contrast, Karen, for example, believed that students could effectively direct many aspects of their learning; a belief that was continuously supported by Karen enabling students to demonstrate their decision making ability through her use of a student-directed socially-critical pedagogy. This not only demonstrated the duality of structure and agency in defining a teacher's pedagogy, but also the importance of praxis.

Praxis, or the notion that "theory building and critical reflection inform our practice and our action, and our practice and our action inform our theory building and critical reflection" (Wink, 2000, p.59) was an important component of the teachers practices, irrespective of whether or not those practices represented rhetoric–reality gaps. Each teacher justified their educational practice in terms of their personal educational ideology, and their educational ideology in terms of their experience of the effects of their practice. Coburn (2004) reported that "teachers' responses to messages are not static" (p.235). This was supported by Wink's (2000) notion that "in praxis, the ideas which guide action are just as subject to change as action is" (p.34). I did not specifically investigate the role of praxis in the teachers' practices or their response to the implementation of SSP. However, my observation of the role of the duality of structure and agency in defining the teachers' practices suggested that any process designed to alter teachers' educational ideologies would need to provide experiences that assisted teachers to critique and adjust their perceptions and practices (McLaren, 1995; Morrow & Torres, 2002; Sarason, 1990; Wink, 2000).

8.8 EDUCATIONAL RHETORIC–REALITY GAPS AND SSP

Analysis of the rhetoric and reality of the implementation of SSP by the teachers showed that the structural features of the school work environment did not universally constrain or enable the teachers to implement a socially-critical pedagogy. However, my analysis of the cases indicated that each teacher's beliefs about the environment and education influenced: their

perception of SSP goals; whether or not they embraced SSP principles in their own lives; and the manner in which they chose to implement SSP in their classrooms (see Chapters 6 and 7). Thus, my response to the research question 'What is the nature of an educational rhetoric–reality gap?' is that, in the context of the implementation of SSP, educational rhetoric–reality gaps were issues of teacher agency. Thus, in order to answer the second research question 'How can educational rhetoric–reality gaps be reduced?' it was essential to identify the influence of teachers' environmental and educational ideologies on their decisions regarding pedagogy.

I found that most of the teachers believed that the goals of SSP represented an environmental ideology based on anthropocentric values, and that those values were congruous with their personal environmental ideology. Thus, the educational rhetoric–reality gaps represented by the neo-vocational pedagogy employed by some of the teachers did not reflect the inability of those teachers to reconcile their environmental ideology with the goals of SSP. Despite this, the teachers referred to the environment in different ways: those who practiced either a neo-vocational or liberal-progressive pedagogy consistently referred to *the* environment; while those who practiced a socially-critical pedagogy often spoke of *our* environment, or, in relation to their students, *their* environment. These differences reflected a difference in not just the classroom practices of the teachers, but also their educational ideologies.

All of the teachers held strong beliefs about their educational role, particularly in terms of their responsibility with respect to: student emotional wellbeing; student ability; assessment of student learning; and their authority classroom. The effect of each teacher's educational ideology was best illustrated by the manner in which they chose to utilise their authority in the classroom, and by what they perceived to be the goal of their teaching strategy. Cathy and Karen, for example, directed their authority in the classroom in a manner that supported a socially-critical pedagogy. They focussed on motivating students through providing a school environment that was highly responsive to students' interests. They helped students to develop their understandings and skills through participation in all aspects of learning activities. In contrast, teachers such as Lisa and Elizabeth directed their authority in the classroom through a neo-vocational pedagogy. They developed learning opportunities that addressed the specific knowledge-based outcomes of the state curriculum. Although they hoped to identify topics that would interest their students, they did not believe that students had any role to play in choosing, designing or developing appropriate learning experiences. This was their role as a teacher.

Each of these approaches not only reflected the respective teachers' educational ideology, but their well-established teaching strategies, or routines of practice. This indicated that Cathy and Karen found the socially-critical pedagogy of SSP to be congruous with both their educational ideologies, and their existing classroom practices. In contrast, Lisa and Elizabeth found a socially-critical pedagogy to be in conflict with their educational ideologies and therefore also

their existing classroom practices. These strategic cases demonstrated that the absence of a gap between a teacher's classroom practices and the rhetoric of the new educational program did not reflect the teacher's ability to successfully respond to educational change, but rather their decision to **not** respond to educational change. I found that the teachers' decisions to not respond reflected their inability to reconcile the differences between their personal educational ideology and the educational ideology represented by a socially-critical pedagogy, and therefore, most importantly, their desire to reduce the development of a rhetoric–reality gap between their personal educational ideology and their chosen pedagogy. I found that, in all cases, a teacher's educational ideology was congruous with their chosen pedagogy, even when that pedagogy conflicted with the pedagogical requirements of SSP. In other words, all of the teachers attempted to implement the ideals of SSP in a manner consistent with their educational ideology, that is, their tacit knowledge of what it meant to be teacher (see also Coburn, 2004; Korthagen, 2001a, 2001b; Lortie, 2002) (see Section 8.7).

8.9 SUMMARY

As outlined in Section 3.10, Giddens described the notion of ontological security as an individual's unconscious safety system; the desire to avoid negative emotions such as anxiety or guilt. This implies that people temper their actions with some reference to feelings, and assert their agency in accordance with their most strongly held beliefs, values and attitudes (Stones, 2005). A detailed investigation of how the teachers viewed ontological security, and of the relationship between the teachers' agency and ontological security, was beyond the scope of this research. However, my interpretation of the data suggests that, in light of the apparent strong link between the teachers' educational ideology, their beliefs in their role as a teacher and their choice of pedagogy, the teachers used their agency in order to undertake their teaching role in a manner that supported their beliefs, and in so doing, enabled them to maintain a sense of ontological security. Thus, the notion of ontological security has potentially significant implications for finding ways in which to reduce the prevalence of educational rhetoric–reality gaps. This is discussed in the Chapter 9.

9 THE WAY FORWARD: REDUCING EDUCATIONAL RHETORIC–REALITY GAPS

9.1 INTRODUCTION

The stories that I gathered during the course of this research provided a glimpse into the dynamic and complexly interrelated human interactions that represent 'education'. The following conclusions, reflections, and ideas for future directions represent my perception and interpretation of the messages embedded within these stories about the efforts of teachers to educate the students whose decisions are already beginning to influence our society, and our natural environment. These messages provide clues about how to contribute to a more sustainable future.

9.2 CONCLUSIONS: EDUCATION *IDEOLOGICAL* RHETORIC–REALITY GAPS

My exploration of teachers' attempts to implement SSP highlighted the presence of educational rhetoric–reality gaps; differences between the reality of the neo-vocational pedagogy practiced by some of the teachers and the rhetoric of the socially-critical pedagogy required to achieve the goals of SSP (see Chapter 2). My analysis of the data, guided by a structuration ontological framework, indicated that these rhetoric–reality gaps were unrelated to aspects of the structural ontological elements of the teachers' work environments, and were therefore issues of teacher agency. In light of this, I investigated how the teachers' environmental and educational ideologies influenced their pedagogical choices for implementing SSP. I found that all of the teachers, irrespective of whether or not they supported the environmental ideals of SSP, and whether or not they practiced a neo-vocational or socially-critical pedagogy, worked to reduce the differences between their personal educational ideology and their classroom practices. Each teacher's educational ideology, or tacit knowledge of what it meant to be a teacher, not only predicted their classroom practices, but those practices re-confirmed their tacit knowledge. This duality contributed to the propensity of the teachers to attempt to implement SSP through their existing well-established practices, and supported the notion that "the beliefs teachers hold with regard to learning and teaching determine their actions" (Korthagen, 2001a, p.81).

In other words, although these rhetoric–reality gaps were revealed through an investigation of teachers' practices in the context of educational change, they were not, strictly speaking, caused by those teachers' attempts to implement that change. The teachers who demonstrated classroom practices congruous with those advocated by SSP had not significantly altered their practices in response to SSP, as they were simply continuing to enact their ideologically preferred and well-established practices. Similarly, these rhetoric–reality gaps did not result from the teachers' attempts to implement educational change, but instead, reflected differences between those teachers' ideologically preferred and well-established practices and those

advocated by SSP. In all cases, the teachers used their agency to continue to enact their ideologically preferred and well-established practices. In all cases, the teachers accommodated any structural component of their work environment in order to implement aspects of SSP only if they believed that such action also supported their educational ideology. Thus, although the rhetoric–reality gaps that I identified were correctly attributed to issues of teacher agency, my analysis suggested that those issues more specifically reflected each teacher's propensity to minimise the difference between their personal ideals and their classroom practices, and were therefore better defined as education *ideological* rhetoric–reality gaps.

Thus, I can now refine my answer to the research question 'What is the nature of an educational rhetoric–reality gap?' In the context of the implementation of SSP, although the educational rhetoric–reality gaps that I identified are certainly issues of teacher agency, they are more accurately referred to as education *ideological* rhetoric–reality gaps, that is, issues of teacher agency related to educational ideology. These education *ideological* rhetoric–reality gaps reflected a difference between the educational ideologies of teachers practicing a neo-vocational pedagogy, and the educational ideology embraced by the socially-critical pedagogy advocated by SSP. I found that these gaps could be attributed to the actions that the teachers took towards maintaining their sense of ontological security at work, and most specifically, the actions that the teachers took towards fulfilling what they believed to be their role as a teacher. The relationships between the structuration ontological elements related to agency (see Figure 6.1) through which I interpreted the nature of these education *ideological* rhetoric–reality gaps, and which contributed to the development of such gaps, are shown in Figure 9.1.

Figure 9.1 shows that, within the socio-cultural structures of a school environment, and in the context of the implementation of SSP, the teachers' practices were driven by their educational ideology. Of the ontological elements critical to the development of these gaps, several formed relationships best described as a duality, including: routines of practice and educational ideology; routines of practice and ontological security; educational ideology and unconscious motives; and educational ideology and ontological security.

Recognition that the rhetoric–reality gaps associated with SSP are education *ideological* rhetoric–reality gaps enabled me to answer the research question 'How can rhetoric–reality gaps be reduced?' In order to reduce the development of education *ideological* rhetoric–reality gaps, programs designed to encourage educational change must address issues of educational ideology and teacher ontological security. This requires such programs to incorporate opportunities for teachers to identify ways in which to relate new pedagogical practices to their personal educational ideology, that is, their belief in what it means to be a teacher.

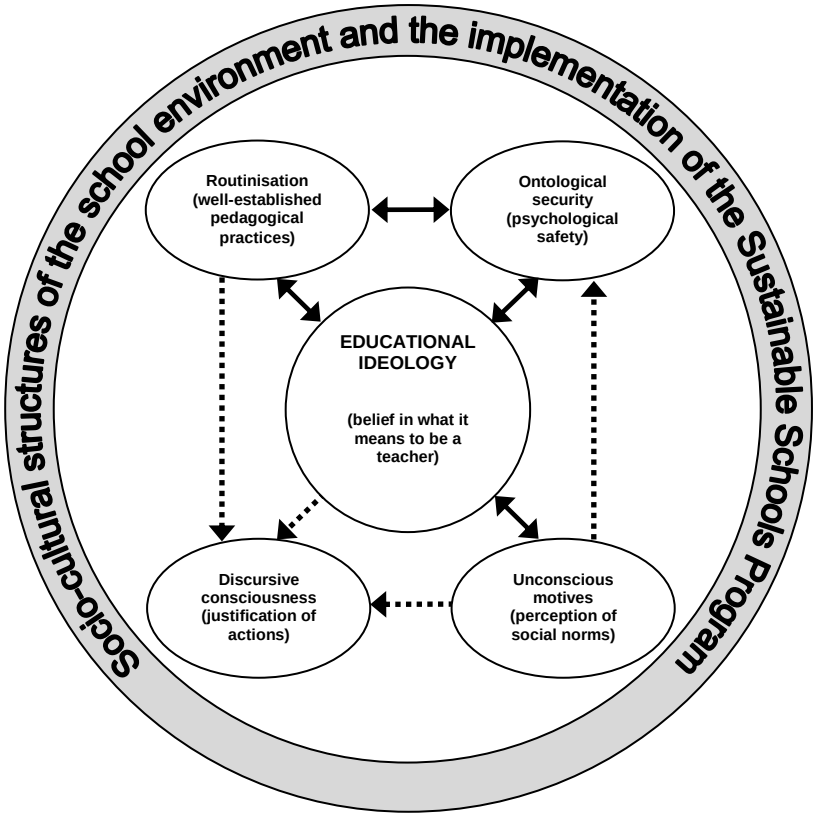


Figure 9.1 Relationships between the ontological elements (Giddens, 1984) central to the development of education *ideological* rhetoric–reality gaps in the context of the implementation of SSP.

Solid arrows show relationships that form a duality, dotted arrows show minor relationships.

9.3 RESEARCH FINDINGS: A SUMMARY

As I began this research, the well-established practices of Australian educational institutions were being questioned for their ability to effectively prepare students for their future in a society shaped by ever increasing rates of change. This was reflected by recommendations from UNESCO for urgent and radical changes to be made to education in order to better prepare humanity for the potentially detrimental and planetary scale effects of the human–environment relationships that sustain the developed world. This would require educators to re-evaluate their role, not just in relation to the practical aspects of classroom teaching, but also in terms of how those practices defined the purposes of education as shaped by society, and through which society is shaped. In Victoria, such educational change was encouraged through the development of SSP, an educational framework that embraced the ideals of ESD. Effective implementation of SSP required educational institutions to significantly alter their organisational structure in order to facilitate opportunities for teachers and students to learn through developing a socially-critical pedagogy. Thus, the success of SSP as a program for long-term change depended most on the ability and willingness of teachers to embrace new classroom practices. The stories of teachers attempting to implement the socially-critical pedagogy advocated by SSP in their primary classrooms became the focus of my research.

My first impressions of the implementation of SSP in schools came from discussions with principals and teachers. The principals were adamant that their decision to implement SSP

reflected the single most important and urgent aspect of their educational leadership role; to bring about pedagogical reform, and most significantly, to reduce the prevalence of neo-vocational instruction in their schools. In light of this, it was promising that the teachers were not only confident in their understanding of the future-oriented and socially-transformative goals of SSP, but also the practice of, and educational ideology embedded within, the socially-critical pedagogy required to achieve those goals. Despite this, as I observed the teachers' classrooms practices it was evident that attempts to implement SSP, through a socially-critical pedagogy, were not universally successful. I found that, irrespective of a teacher's years of classroom experience, or the level of support they received during their efforts to participate in the change process, they were most likely to implemented SSP through a neo-vocational pedagogy; an approach they knew to be unsupportive of SSP educational goals. In other words, most of the teachers practiced in a manner that represented a significant gap between the reality of their classroom practice and the rhetoric of SSP goals.

Many of the teachers attributed their 'inability' to employ a socially-critical pedagogy to one or more of the ontological structural elements common to any educational environment, including for example: the lack of appropriate learning spaces; the inflexible nature of certain school routines; a lack of time; or the scarcity of essential teaching and learning equipment. Despite the potential for a teacher's practice to be influenced by such elements, I observed that, in contrast, some teacher's practices actively influenced the structural elements of their work environment. Furthermore, teachers who employed a socially-critical pedagogy demonstrated that the potential 'constraints' of such structural elements were substantially reduced, or even eliminated, by their use of a socially-critical pedagogy. This suggested that the structural ontological elements of the teachers' work environments did not universally constrain, or enable, the teachers' ability to implement a socially-critical pedagogy, and therefore, could not be used to predict the development of the educational rhetoric–reality gaps that I observed. This indicated that the teachers' practices, including both the neo-vocational and socially-critical pedagogies, were the result of aspects of the teachers' agency. In light of this, I focussed on identifying the relationship between the teachers' beliefs, and the environmental and educational ideals embedded within the goals of SSP and the practice of a socially-critical pedagogy.

The teachers interpreted the future-oriented and socially-transformative goals of SSP to support anthropocentric environmental values that were, most importantly, congruous with their personal environmental beliefs. This suggested that the teachers did not consider the goals of SSP to be an ideological barrier to implementing the program. The teachers also held strong beliefs about their role as educators, particularly in terms of their responsibility regarding: student emotional wellbeing; student ability; assessment of student learning; and the employment of their authority in the classroom. I found that each teacher embraced a pedagogy that was congruous with their beliefs regarding these responsibilities. In other words, irrespective of whether or not a teacher was implementing SSP through a neo-vocational or a

socially-critical pedagogy, they were attempting to enact their personal educational ideology. This indicated that the educational rhetoric–reality gaps identified by the gap between a neo-vocational pedagogy and the goals of SSP, represented the teachers' attempts to minimise the development of rhetoric–reality gaps between their classroom practice and their belief in what it meant to be a teacher. Thus, I concluded that the rhetoric–reality gaps identified by the use of a neo-vocational pedagogy to implement SSP were, more specifically, education *ideological* rhetoric–reality gaps. In the context of SSP, these gaps reflected a conflict between the teachers' beliefs regarding the practices that defined their role as a teacher, and the educational ideological values embedded in the practice of a socially-critical pedagogy. For these teachers, the action of implementing a socially-critical pedagogy not only contradicted their notion of what it meant to be a teacher, but reduced their ability to maintain a sense of ontological security in their work environment.

Thus, in the context of moving towards effective socially-critical environmental education, as represented by SSP, the stories I gathered from primary classrooms suggested that, irrespective of the structural ontological elements of a work environment, each teacher used their agency in a manner that enabled them to maintain their chosen classroom pedagogy. I interpreted this as evidence that the teachers sought to maintain their sense of ontological security, which they measured as the degree to which their classroom practices were congruous with their personal educational ideology.

In light of this, the educational rhetoric–reality gaps I identified between the goals of SSP and the use of a neo-vocational pedagogy were more specifically, and more usefully, described as education *ideological* rhetoric–reality gaps. These education *ideological* rhetoric–reality gaps reflected the gap between the educational ideologies of teachers practicing a neo-vocational pedagogy, and the educational ideology embraced by the socially-critical pedagogy advocated by SSP. Similarly, while such gaps certainly reflected issues of teacher agency, they were more accurately attributed to the teachers' use of agency towards maintaining a sense of ontological security, and in particular, towards fulfilling their beliefs regarding their role and responsibilities of being a teacher. In light of this, I believe that the educational rhetoric-reality gaps associated with the implementation of SSP reflected the lack of professional development pathways that specifically correlated the educational ideology of a socially-critical pedagogy to those perceived by teachers to be embedded in the practice of their preferred neo-vocational pedagogy. My findings suggest that programs for educational change, and in particular, programs for pedagogical change, must assist teachers to correlate their personal educational ideologies with those they perceive to be embedded in the pedagogical practices they are asked to implement. My findings suggest that, during any process of educational change, it is only when teachers believe that embracing change contributes to the fulfilment of their role as a teacher that they are able to maintain their sense of ontological security, and in so doing, reduce the potential for educational rhetoric–reality gaps to develop. This has significant implications

for future research related to the development of educational rhetoric–reality gaps, and for the design and implementation of programs for educational change, particularly those advocating pedagogical change (see Section 9.4).

9.4 REFLECTION: MY RESEARCH JOURNEY AND GIDDENS' THEORY OF STRUCTURATION

As I reflect on my research journey, my gaze turns to the bookshelf crammed with an assortment of well-thumbed, dog-eared books and the filing cabinet drawers that overflow with handwritten notebooks and photocopied documents pockmarked with highlighted passages and scores of fading post-it notes with quickly-scribbled ideas. This scene is testament to my early attempts to understand each and every aspect of Giddens' notion of the duality of structure and agency, as I grappled with my decision to base the design of my research on a theory for which there was no established epistemological procedures, few examples of its use in educational research, and a multitude of reports warning that Giddens' ideas were notoriously difficult to read and comprehend. In hindsight, this was both the most difficult and most important decision that I made while undertaking this research. There is much upon which to reflect as a result of my engagement with Giddens' theory of structuration; a theory of which I consider myself to continue to be a student. There was something very compelling about finding a way in which to effectively employ Giddens' ideas, not only for their potential to shed new light on what was a well-documented phenomenon, but because I found them intriguing. At that time, I did not appreciate the scale of the challenge of understanding Giddens' ideas that I faced.

Giddens' theory of structuration asks researchers to take a holistic view of the ontological reality of any social situation. Although this seems a theoretically commendable approach, in the absence of explicit guidelines regarding exactly how to do this (see Section 3.14), my experience of undertaking this research suggests that adhering to Giddens' ideals is not a simple task. I found the most problematic part of undertaking this research to be related to the most fundamental aspect of structuration, that is, that the socio-cultural structures that influence social interaction have no reality other than the way in which they are expressed through human action: they are epiphenomena that exist only at the time and in the location in which they contribute to human action (see Section 3.9). Most significantly, and in line with Giddens' notion of the duality of structure and agency in which actions and structures presuppose one another, these human actions contribute to, and define, those socio-cultural structures. Earlier I presented concerns outlined by several critics' regarding both the validity of Giddens' notion of the duality of structure and agency and the methodological problems it presents (Chapter 3). Although a detailed exploration of these ideas is beyond the scope of this research, I found that the notion of a duality of structure and agency presented me with some methodological dilemmas not the least of which was the question of whether or not it was possible for a researcher to effectively identify and interpret the true nature of any aspect of either structure, or

agency, as it was instantiated in the moment of action. Although I believe that the answer to this is, undoubtedly, no, I also believe that this does not diminish the value of attempting to understand the elements of both structure and agency that contribute to an action. This however, requires careful consideration of how to best expose the ways in which structure and agency interrelate. I found that the lack of an accepted reliable approach to investigating such interrelationships potentially limited my ability to effectively undertake research founded on the ideals of structuration.

If the notion of a duality of structure and agency is to be considered valid, it is important to determine how to achieve research findings that not only reflect the complexity of this duality, but which incorporate an understanding of the dynamic nature of this duality. In hindsight, this is something that I did not fully appreciate when I began this research. In terms of my research, a more comprehensive understanding of the manner in which educational rhetoric–reality gaps reflected the duality of structure and agency, as instantiated by teachers' classroom practices, would have been gained by observing change in time and/or in space. For example, although I can confidently state that Lisa began to implement SSP through a neo-vocational pedagogy, I am unable to comment on the continued influence of implementing SSP on her practices. I am unable to state whether or not Lisa's classroom practices had become more, or less, socially-critical during the introduction of SSP. Similarly, as I did not observe Lisa teaching curriculum other than SSP, I cannot comment on if, or how, her approach to SSP differed from her approach to other types of curriculum. In other words, I am only able to provide a snapshot of Lisa's classroom practices at one moment in time and space: both aspects of context that Giddens considered central to understanding human action (see Section 3.10). While I do not believe that this diminishes the significance of my findings as a snapshot of a specific educational rhetoric–reality gap, it does indicate that further investigation would be required to fully understand the role of SSP in achieving effective ESD, and in the development of rhetoric–reality gaps.

Structuration is a complex and multifaceted theory. Giddens described the facets of structuration as "sensitizing devises, nothing more" (Giddens, 1984, p.327), and stated that each researcher must choose which of these are most relevant to their specific research problem. I believe that when I designed this research, I did not fully appreciate the implications of my choice of structuration elements. An important aspect of my research was the comparison of the ideas and practices of several teachers in order to develop a better understanding of the potential range of situations that could contribute to the development of educational rhetoric–reality gaps. While this is certainly a valid research approach, and one which supported my constructionist perspectives (see Section 4.2), I found the application of structuration in this context to be difficult.

In order to effectively investigate current human actions, such as teachers' pedagogical practices, I needed to decide not only which of Giddens' structuration elements were most relevant to my research problem, but also which would direct the generation of data that would form the best basis for comparison. For example, I chose to compare the experiences and practices of a variety of teachers from a variety of schools. When I began this research, I believed that this would provide me with the opportunity to develop the most holistic understanding of the structuration elements that would provide the answers to the research questions. In hindsight however, potentially more effective options were available. All of the teachers who participated in my research shared the same 'structured set' (Figure 3.4) in that they had been asked to implement SSP. However, with the exception of a small sample of teachers who worked at the same school, all of Giddens' 'sensitizing elements' were not only potentially significant, but also significantly different, for each of the participants. Although I made some necessary assumptions regarding, for example, the similarity of educational institutions (see sections 3.14.2 and 4.3.1), and limited the focus of my detailed analysis to what I considered to be the structuration elements most relevant to the teachers' practices I observed, I am now conscious of the fact that I could have reduced (although not eliminated) the scale of these unknown influences by narrowing the field of my investigation in one of two ways; either by focusing on the dynamics and effects of the duality of structure and agency within a single educational institution, or by focusing on the experiences of just two teachers, who, like Elizabeth and Karen, demonstrated very different approaches to implementing SSP. Either of these approaches may have provided opportunities to more comprehensively investigate a wider range of the structuration ontological elements identified by Giddens, or to investigate a specific set of elements in greater detail. In no way do I wish to imply that investigations that involve many participants and/or multiple locations are irrelevant or misleading, just that, for example, the structuration elements most useful for investigating the factors that influence teachers' practices at different institutions may not be the same as those required to most effectively investigate the factors that influence teachers' practices at the same institution.

In other words, although Giddens' theory of structuration aims to holistically describe the ontology of social life, it is limited by the fact that it may not be practicable, or indeed possible, to comprehensively investigate every aspect of a specific human action or social interaction, particularly in a time limited research project such as this. Thus, the design of any research founded on the ideals of structuration must reflect the careful consideration of the specific structuration elements that data generation techniques and interpretation methods aim to investigate. In saying this however, and in acknowledgement of Giddens' suggestion that not all of the elements of structuration might be useful or relevant to a single situation (Giddens, 1984), it is also true that by having taken a broad approach to my research problem, I have a better idea about where to focus my future research efforts (see Section 9.4). However, irrespective of the breadth of any research approach, one aspect of structuration is critical to

understanding the role of human agency in any research problem, that is, human knowledgeability.

My attempt to employ structuration to investigate current human practices revealed one aspect of the theory that could significantly limit the usefulness of some data generation techniques, that is, the need to access individuals' unconscious, conscious and non-conscious forms of knowledge. As my understanding of Giddens' work grew, so too did my sense that identifying these forms of knowledge, and most importantly, disparities between them, would be a critical step in developing my understanding of teacher agency. I now believe that finding a way to address this need, through the use of the hypothetical scenarios in interviews, contributed most to my research findings. I do not remember exactly how the idea for using these scenarios evolved, although I do recall thinking that it always seems so much easier to comment on the good and bad points of another person's actions than to publicly, and honestly, critique my own. Upon reflection, the insights I gained during discussions with teachers that were prompted by the hypothetical scenarios proved to be the key to developing my understanding of their experiences of the duality of structure and agency, and ultimately, to identifying the subtleties of their agency which enabled me to answer the research questions.

Throughout this research, my personal views of how our society influences the manner in which teachers engage children with learning were constantly challenged. My response to the 'education' that I observed in the primary classrooms see-sawed from positive excitement to utter dismay, and in general, made me feel rather depressed and unhopeful. It was not until a significant way through my analysis of the data that I could separate these feelings from the actions of the teachers that I had observed. It was with great surprise that my interpretation led to the conclusion that all of the teachers, irrespective of my views of their classroom practice, demonstrated an unerring commitment to their professional identity as teachers. This realisation brought me back to the broader social context in which I was undertaking this research, particularly in terms of international calls for urgent and radical changes to be made to education, and the acknowledgement that this would require educators to re-evaluate their role.

In the introduction to this thesis, I stated that I was undertaking this research in order to contribute to humanity's journey into the future: a journey that will be shaped, in part, by the way in which today's educators prepare students for their future decision-making roles. My research findings show that my continuing contribution to that journey will be to find ways in which to facilitate teachers' efforts to re-define their role.

9.5 FUTURE DIRECTIONS

The teachers' stories in which my research findings are grounded attest to the dynamic and complex nature of the role of a teacher in a primary classroom. More than anything else, their stories contain the message that there is unlikely to be a single solution, or even a single

definition, for any educational research problem. It is because of this complexity that I believe that Giddens' theory of structuration has much to offer the field of educational research. The stories that I tell in this research demonstrate that structural elements of an educational institution both shape, and are shaped by, teachers' routines and practices. This suggests that much can be learned about educational practices through developing an understanding of inter-relationships between elements of both structure and agency, and in particular, how these relationships are reflected by the teaching and learning of different outcomes, in different classrooms, by different teachers. With hindsight, I can state most confidently that the use of an ontological framework that embraced Giddens' notion of the duality of agency and structure provided a degree of breadth and depth to my investigation that would have been lacking if I had focused on only one of structure or agency. I believe that research designed to refine and validate the applicability of Giddens' ideas to the field of education has the potential to develop ontological and epistemological frameworks that could provide research pathways for improving our understanding of many aspects of the process of education, and in light of my research, therefore contribute to the ability of educational institutions, and their teachers, to evolve in ways that address the future needs of society.

In the context of the implementation of effective socially-critical environmental education, my research findings suggest the need for an improved understanding of the relationship between a teacher's educational ideology and their chosen pedagogy. I believe that this understanding holds the key to the effective design of programs for educational change and the potential to reduce the prevalence of educational rhetoric–reality gaps, particularly in relation to programs for pedagogical change and the development of educational *ideological* rhetoric-reality gaps. Although my research findings support the notion that a teacher's educational ideology shapes their classroom practices, I did not investigate ways in which to effectively facilitate pedagogical change. I believe that future education programs for pedagogical change would benefit from research which focuses on identifying ways in which teachers' educational ideology both shapes, and is shaped by, their classroom practices. In addition, it is important to identify ways in which to intervene in this ideology-pedagogy duality, in order to facilitate pedagogical change that is supported by, and supportive of, teachers' educational ideology.

APPENDIX

THE HYPOTHETICAL SCENARIOS

The following annotated hypothetical scenarios[22], used in teacher interviews (see Section 4.4.4), were developed from descriptions of pedagogy provided by Kemmis, Cole and Suggett (1983).

Hypothetical scenario 1: Liberal–progressive pedagogy		
The teacher outlines learning goals and assessment criteria. In many instances students may have a choice about how they will achieve these. *Projects are used as a method for building on important knowledge in order to gain a thorough understanding.* *The teacher facilitates learning by organising activities and opportunities to hear from other members of society, or to visit different regions.* *Learning often occurs through experiences where students explore, problem solve, and share ideas in order to develop meaning.* *Students may choose to undertake different aspects of the overriding project, but all work is related to the teacher's determination of the knowledge to be gained.* *Teacher and student negotiate the value of the knowledge and skills to be learned.*	**At a school curriculum meeting, and in response to teachers' observations of improved student engagement during hands-on outdoor activities, teachers designed a project for grade three (3) students to grow native plants around the school. This project will integrate aspects of both the Science (ecosystems/food webs) and SOSE (human–environment relationships) key learning areas. Teachers will organise a guest speaker from the local Aboriginal group to talk about traditional use of plants, and schedule a forest walk with a parks officer to explain the roles of native plants in local environments. The class will study the local ecosystem with a view to choosing appropriate plants for inclusion in their school garden. Students will work in pairs to choose a focus for their study, and in consultation with their teacher, design learning activities. Formal assessment will require students to present research results as posters. Peer feedback will be encouraged, and final posters are to be displayed around the school for parents and visitors to view. Teachers will also note student collaboration and participation during planting activities. Garden planting might include weekend workshops with parental assistance.**	*The teacher is responsive to student interests, concerns and prior knowledge.* *SSP is being incorporated into existing science and SOSE curricula, thereby maintaining traditional subject boundaries.* *The teacher's role is to arrange learning opportunities which motivate and encourage students to explore—experiences to help students make 'sense' of their world.* *Assessment is part of the learning process, and incorporates opportunities for students to evaluate their own learning—self and/or peer assessment.* *Final assessment will reflect both work quality (grade) and observed development of personal skills (descriptive).* *Parents are encouraged to assist in some aspects of certain learning activities.*

[22] Unannotated versions of each of the hypothetical scenarios were used during interviews.

Hypothetical scenario 2: Socially–critical pedagogy		
Student learning occurs through democratic participation in their community. *Students learn that knowledge is based on experience and reflection of self and others.* *Students have opportunities to act in ways that shape their school and their society.* *SSP is integrated throughout the curriculum to broaden learning experiences and to maximise opportunities for learning and acting within the community and local area.* *Assessment requirements are negotiated between teacher and students.* *Assessment is primarily descriptive, representing personal development and community achievement. This may include evidence in the form of self, peer and community assessment.*	**At a community meeting involving members of the extended school community and local residents, students canvassed ideas for establishing their role in the sustainable development of their community. Multi-age student groups explored ideas from this meeting to develop a sustainable environmental project. For example, one group chose to design and create sustainable indigenous gardens in and around local industrial/factory sites. With assistance from teachers as required, this group worked collaboratively to develop the knowledge and skills from all areas of the curriculum they need in order to undertake this project. They negotiated with and learned from local park officers, industry owners, indigenous people, environmental groups, and local residents. Their project involved activities such as collecting indigenous seeds, propagating seedlings and designing and developing sustainable garden areas. Each student negotiated with their teacher how they might demonstrate their personal development, participation, and learning throughout the project. Teachers provided students and parents with descriptive assessments that often incorporated responses from the local community.**	*Student decision-making is an important component of learning.* *Teachers and students are co-learners. Students work collaboratively and develop interpersonal skills alongside other learning outcomes. Groups are often multi-aged and/or incorporate community members.* *Most aspects of the learning are directed by students with assistance from teachers as required.* *Teachers monitor learning to ensure students develop critical awareness of themselves and society, such that learning incorporates both understanding and action.* *Projects link active and passive learning methods, or knowledge and skill development, and take place in a realistic context.* *Students develop their understanding of self as a product of their society.*

Hypothetical scenario 3: Vocational–neo-classical pedagogy		
The teacher identifies the appropriate concepts and topics to be incorporated into any curriculum and allocates topics that combine student interests and teacher-perceived educational needs of society. *Parental consent is required for extra-curricula activities. Parents rarely participate in day-to-day learning activities.* *The role of knowledge and skills is explained in terms of an occupational perspective.* *The teacher is the authority in the classroom and uses their teaching skills to motivate students and to ensure essential knowledge is palatable to them. The teacher determines what are the most effective and efficient learning environments.* *The teacher directs students to the most important knowledge and directs students present their learning/understanding of this knowledge.*	**A teacher is designing lessons for a series of scheduled science classes—a program which incorporates students' interests in environmental issues while addressing essential learning requirements. This teacher has identified that in readiness for further education, and as stipulated by curriculum documents (VELS), grade six (6) students must understand the process of scientific inquiry. The teacher will identify reliable web resources and appropriate books within the school library to enable students to answer the question "How do scientists work?" A parent scientist from a conservation group may visit the class to explain some aspects of their work. Students will present their answers to the class, and the teacher will compile and refine their ideas to define the scientific process. In order to demonstrate and consolidate their understanding, students will then conduct an actual investigation during science classes. Students choose from a list of environmental or sustainable development questions relating to the importance of native plants. These questions are designed by the teacher to maximise the chances of successful completion with the science laboratory resources and time available, and for their potential to provide students with opportunity to develop essential science curriculum understandings. A template will be provided for students to use in writing a science report for assessment.**	*The overriding educational aim is to develop knowledge and skills as deemed to represent the practical requirements of society. SSP is used here to help students develop an essential understanding—the nature of scientific understanding.* *Essential factual knowledge is obtained from reliable sources. Resources, such as books, materials or websites, are located and provided by the teacher—appropriate times are allocated during which students may access these resources.* *This is a knowledge-based education. Learning is achieved through a logically structured sequence of lessons.* *The emphasis of any lesson is on producing products to be formally assessed.* *Grades are allocated according to set criteria or standards.*

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